PROGRAMME, SHOW GUIDE & ABSTRACTS

9th VETERINARY PARAVETERINARY & SASVEPM CONGRESS 2017

24-27 JULY 2017
BIRCHWOOD HOTEL & OR TAMBO CONFERENCE CENTRE

SAVA
South African Veterinary Association
Suid-Afrikaanse Veterinêre Vereniging

Southern African Society for Veterinary Epidemiology & Preventive Medicine

South African Association of Veterinary Technology

WVA
World Veterinary Association
LOCAL ORGANISING COMMITTEE

Johan Marais  
Gert Steyn 
Remo Lobetti 
Rick Mapham 
Susan Heine 
Sonja van Rooyen 
Ian Southern 
Retha Pansegrouw 
Dalene Janse van Rensburg 
Elléne Kleyn 
Krpasha Govindsamy 
Greg Simpson 
Marianna Rossouw 
Hannes Croukamp 
Rai Landau 
Dale Parrish 
Ken Pettet 
Melvyn Greenberg 
Petrie Vogel 
Erna Klopper 
Liezl de Klerk  

SAVA 
SAVA  
SAVA  
SAVA 
SAVA 
SAVA 
National NVCG Chairperson 
VNASA 
VNASA 
SAVA Young Members Group 
SASVEPM 
Wildlife Group  
Industry 
Industry 
Industry 
SAVETCON 
SAVETCON 
SAVETCON 
SAVETCON  

EVENT ORGANISER

SAVETCON EVENT MANAGEMENT  
Ms Petrie Vogel 
Tel: +27 (12) 346 0687, Fax: +27 (12) 346 2929 
petrie@savetcon.co.za  

Scientific editor & coordinator: Dr Remo Lobetti 
Layout and design: Marina Lubbe Graphic Design
**PROGRAMME**

**Monday 24 July 2017**

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<tr>
<td>16:00-19:00</td>
<td>Congress Registration from 16:00-19:00</td>
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<td>18:00</td>
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<td>Explicitly for registered 9th SA Veterinary and Paraveterinary and SASVEPM 2017 Congress delegates</td>
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**Tuesday 25 July 2017**

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<tbody>
<tr>
<td>08.30-09.10</td>
<td>Recognising endocrine disease (Remo Lobetti)</td>
<td>Fluid therapy (Kenneth Joubert)</td>
<td>Basics of fracture repair (Greg Irvine Smith)</td>
<td>An unusual case of rabies in sheep in the North West Province, South Africa (Ken Petley)</td>
<td>Practice Management 101: Finances (Henry Annandale)</td>
<td>Legal protection of animals (Bonita Meyersfeld)</td>
<td>Canine aggression: Interdog aggression (Frederique Hurly)</td>
<td>Delving deeper into bite wounds (Dr Ross Elliot)</td>
<td>Private-Public partnerships in veterinary services (Bothe Michael Modisane)</td>
<td>African horse sickness virus evolutionary dynamics (A van Schalkwyk)</td>
</tr>
<tr>
<td>09.15-10.00</td>
<td>Interpretation of endocrine tests (Johan Schoeman)</td>
<td>Fluid therapy – continued (Kenneth Joubert)</td>
<td>Basics of external skeletal fixation (Fanie Naude)</td>
<td>Creating rabies awareness in a rural community (Quixi Sonntag)</td>
<td>&quot;Sleep Deprivation&quot; and the debilitating impact on optimal performance among veterinarians – A practical guide to understanding sleep architecture, sleep disorders and remedial interventions (Hermann Liebenberg)</td>
<td>NSPCA and animal protection legislation (Marcelle Meredith)</td>
<td>Canine aggression – Part 2: Human directed aggression and risk assessment (Frederique Hurly)</td>
<td>To suture or not to suture? (Dr Ross Elliot)</td>
<td>A framework for targeted allocation of resources (Bruce Gummow)</td>
<td>Salivary gland transcriptome of Rhipicephalus (Boophilus) microplus (S Genu)</td>
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<tr>
<td>10.00-10.30</td>
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<td>10.30-12.00</td>
<td>Plenary session: Day-one Skills for Veterinarians</td>
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<td>12.00-13.00</td>
<td>Lunch</td>
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♦ These talks are earmarked for veterinarians that qualified in the last 5 years
<table>
<thead>
<tr>
<th>Time</th>
<th>Venue</th>
<th>Small Animal Medicine</th>
<th>Critical Care Medicine</th>
<th>Production Animals</th>
<th>Wellness &amp; Practice Management</th>
<th>Animal Welfare</th>
<th>Nurses</th>
<th>Behaviour Nurses</th>
<th>Vet Techs/Technicians/SASVEPM</th>
<th>Clinical (SAALAS)</th>
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</thead>
<tbody>
<tr>
<td>13:00-13:40</td>
<td>Auditorium</td>
<td>Euthyroid sick syndrome revised (Johan Schiemann)</td>
<td>Feline hypothyroidism (Joanne McLean)</td>
<td>Approach to front limb lameness (Frederique Hurly)</td>
<td>Brachycephalics – An animal welfare disaster! (Dale Neves)</td>
<td>Brucellosis knowledge, attitudes and practices of cattle keepers in a rural community in the Eastern Cape (Hermann Liebenberg)</td>
<td>Bite wounds wrap it up! Bandages, dressings &amp; drains (Sr Tamarin Fisher)</td>
<td>Canine compulsive disorders (Frederique Hurly)</td>
<td>Vet Techs/Technicians/SASVEPM</td>
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<tr>
<td>13:45-14:30</td>
<td>Cape Town</td>
<td>Euthyroid sick syndrome revised (Johan Schiemann)</td>
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<td>Macro Polo</td>
<td>Euthyroid sick syndrome revised (Johan Schiemann)</td>
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<tr>
<td>14:35-15:15</td>
<td>Wonderboom</td>
<td>Euthyroid sick syndrome revised (Johan Schiemann)</td>
<td>Feline hypothyroidism (Joanne McLean)</td>
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<td>15:15-15:45</td>
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<tr>
<td>15.45-16.25</td>
<td>Management of canine Cushing's disease (Varaidzo Mukorera)</td>
<td>Veterinary nosocomial infections (Neil Forbes)</td>
<td>Surgical options for repair of hip dysplasia (Fanie Naude)</td>
<td>Differential expression of tick resistance related genes following artificial infestation with R. microplus and R. decoloratus ticks (Chris Marufu)</td>
<td>&quot;Brainspotting&quot; for veterinarians - A new and revolutionary Neuro-physiological evidence based psychotherapeutic breakthrough in dealing with stress, burnout, trauma and various other emotional challenges (Hermann Liebenberg)</td>
<td>Monitoring physiological indicators of stress during transrectal palpation in mares used for teaching (Elize van Vollenhoven)</td>
<td>-</td>
<td>Feeding for recovery &amp; long term health (Dr Guy Fyvie)</td>
<td>Spatial planning, implementation, monitoring and evaluation of dog rabies vaccination campaigns in the Bushbuckridge Municipality, Mpumalanga Province, South Africa (Bjorn Reininghaus)</td>
<td>Diagnostic testing at PVVD, ARC-OVI (Matthee, O)</td>
</tr>
<tr>
<td>16:30-17:10</td>
<td>Diabetic ketoacidosis and hyperglycemic hyperosmolar syndrome (Amie Koenig)</td>
<td>Rational antibiotic use: should you really be using that? (Wilco Botha)</td>
<td>Patella luxation as a sign of an angular limb deformity (Ross Elliott)</td>
<td>Comparison of immunological responses in ancient and modern tick-host interactions (Chris Marufu)</td>
<td>Medici – The future of the doctor-patient relationship (Chris Ellis and Steve van der Watt)</td>
<td>-</td>
<td>-</td>
<td>Heading home, the best way to recovery (Dr Vanessa McClure)</td>
<td>Seroprevalence and risk factors for Rift Valley fever in domestic ruminants in the Free state and Northern Cape, 2015-2016 (Yusuf Ngoshe)</td>
<td>Evaluation of African horse sickness cases to Culicoides numbers and climatic variables (K Labuschagne)</td>
</tr>
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**Happy Hour**

**17:30 SAVA AGM – Venue: Cape Town International**

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**Wednesday 26 July 2017**

<table>
<thead>
<tr>
<th>Time</th>
<th>Critical Care</th>
<th>Small Animal Surgery</th>
<th>Small Animal Medicine</th>
<th>Wellness &amp; Practice Management</th>
<th>Animal Ethics</th>
<th>Wildlife</th>
<th>Exotics</th>
<th>Nurses</th>
<th>SASVEPM</th>
<th>Vet Techs/Technicians/SAALAS</th>
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<tr>
<td><strong>Venue</strong></td>
<td>Auditorium</td>
<td>Marco Polo</td>
<td>Cape Town International</td>
<td>Wonderboom</td>
<td>Grand Central</td>
<td>Lanseria</td>
<td>Waterkloof</td>
<td>Barcelona</td>
<td>King Shaka</td>
<td>Charles de Gaulle</td>
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<tr>
<td><strong>8.30-9.10</strong></td>
<td>Recognizing shock, categories, treatment (Amie Koenig)</td>
<td>Surgical management of TL intervertebral disc disease (Sara Boyd)</td>
<td>Oncology cases of dogs and cats treated with electron radiation therapy (Georgina Crewe)</td>
<td>&quot;Sleep Deprivation&quot; and the debilitating impact on optimal performance among veterinarians – A practical guide to understanding sleep architecture, sleep disorders and remedial interventions (Hermann Liebenberg)</td>
<td>Animal sentience, animal ethics and the veterinary profession (John Austin)</td>
<td>Wildlife antelope digestion – basic and practical review (Andri Garrett)</td>
<td>-</td>
<td>Perils for puppies &amp; kittens – talking toxicities (Dr Wilco Botha)</td>
<td>The interpretation of laboratory diagnostic test results for disease diagnosis (Joule Kangumba)</td>
<td>Workshop to be announced</td>
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<tr>
<td><strong>9.15-10.00</strong></td>
<td>Heatstroke (Amie Koenig)</td>
<td>Surgical management of lumbar disc disease (Ross Elliott)</td>
<td>Understanding the basics of cancer and the various methods of treatments (Georgina Crewe)</td>
<td>Practice Management 101: Finances (Henry Annandale)</td>
<td>Why the veterinary profession cannot ignore the rights of non-human animals (Michele Pickover)</td>
<td>Treating rhino trauma, orphans and translocation (Peter Rogers)</td>
<td>-</td>
<td>VNASAGM (Sr Retha Pansegrouw)</td>
<td>Detection and distribution of bovine trypanosomiasis in Malawi (Elizabeth Chimera)</td>
<td>Molecular epidemiology of bovine trypanosomiasis amongst pastoralist cattle: a case of Monduli District, Northern Tanzania (Esther Gwae Kimaro)</td>
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| 10.00-10.30 | Tea |
| 10.30-12.00 | Opening/Plenary session: Antimicrobials – Dr Niel Homer-Forbes |
| 12.00-13.00 | Lunch |

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<tr>
<th>Time</th>
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<th>Workshop to be announced</th>
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<tbody>
<tr>
<td>13:00-13:40</td>
<td>Auditorium</td>
<td>The coordinate confusion (Hannes Piennar) Prevalence and risk factors for antimicrobial-resistant Staphylococcus aureus isolates from South Africa, 2015-2016 (Vashnee Govender)</td>
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<td>VetsTech/ Technicians/ SAALAS/ Charles de Gaulle</td>
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<tr>
<td>13:45-14:30</td>
<td>Auditorium</td>
<td>Fluid therapy, &quot;the good, the bad, and the ugly&quot; (Dr Lynette Bester)</td>
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<td>VetsTech/ Technicians/ SAALAS/ Charles de Gaulle</td>
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<tr>
<td>14:35-15:15</td>
<td>Tea</td>
<td>These talks are earmarked for veterinarians that qualified in the last 5 years</td>
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### Schedule of Talks

**13:00-13:40**
- **Surgical treatment of cervical disc disease**
- **Conflict management as encountered by veterinarians dealing with difficult clients**
- **Respiratory Patterns in the Dyspnoeic Patient**
- **Recognizing ICU patients**

**13:45-14:30**
- **Fluid therapy, "the good, the bad, and the ugly"**
- **Wellness & Practice Management 101: Personnel**
- **What is it all about and how can it contribute**
- **Monitoring ICU patients**

**14:35-15:15**
- **Monitoring patients in the ICU**
- **Chasing the ghost" Drug & infusion calculations**
- **Tail docking in dogs: 10 years on**
- **Review of the science behind the modalities used**

**Time**

- 13:00-13:40
- 13:45-14:30
- 14:35-15:15
<table>
<thead>
<tr>
<th>Time</th>
<th>Dermatology (Virbac)</th>
<th>Physiotherapy</th>
<th>Wellness &amp; Practice Management</th>
<th>Animal Ethics</th>
<th>Wildlife</th>
<th>Exotics</th>
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<td>King Shaka</td>
<td>Charles de Gaulle</td>
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<tr>
<td>15:45-16:25</td>
<td>Diagnosis and</td>
<td>The surgical</td>
<td>Practice Management 101:</td>
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<td>SASVEPM AGm VET TECHS AGM</td>
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<td>management of canine atopy (Andrew Leisewitz)</td>
<td>patient (Marinette Teeling)</td>
<td>Inventory ♦ (Henry Annandale)</td>
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<td>Common and emerging infectious diseases of farmed sable antelope (Jacques O’Dell)</td>
<td>Approach to the anorexic rabbit (Dorianne Elliott)</td>
<td>Opening a can of worms – the 3 terrors (Dr Mats Abatzidis)</td>
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<td>16:30-17:10</td>
<td>Overview of cutaneous auto-immunities (Andrew Leisewitz)</td>
<td>The neurological patient (Marinette Teeling)</td>
<td>Medici – The future of the doctor-patient relationship (Chris Ellis and Steve van der Watt)</td>
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<td>SASVEPM AGm VET TECHS AGM</td>
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<td>First aid and immobilization drug exposure (Jacques O’Dell)</td>
<td>Basic reptile husbandry and medicine (Dorianne Elliott)</td>
<td>Lifetime nutrition – start at the very beginning (Dr Guy Fyvie)</td>
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<td>19:30</td>
<td>Gala Dinner</td>
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## Thursday 27 July 2017

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<tr>
<th>Time</th>
<th>Small Animal Medicine</th>
<th>Small Animal Surgery</th>
<th>Production Animals</th>
<th>Equine</th>
<th>Wellness &amp; Practice Management</th>
<th>Nurses</th>
<th>SASVEPM</th>
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<tbody>
<tr>
<td>8.30-9.10</td>
<td>Pancreatitis: demystifying diagnosis and treatment (Zandri Whitehead)</td>
<td>Dealing with the obstructed ureter (Ross Elliott)</td>
<td>Uses and abuses of antibiotics and antibiotic resistance (Adé de Haast)</td>
<td>Practical application of special radiographic views in equine practice (Nicolene Hoepner)</td>
<td>Practice Management 101: Finances (Henry Annandale)</td>
<td>It wasn’t me! Accepting accountability (Des Rees)</td>
<td>Collection and packaging of diagnostic samples (Didi Janse van Rensburg &amp; Laura Lopez)</td>
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<tr>
<td>9.15-10.00</td>
<td>My patient is anaemic and it’s not Babesia...now what? (Anri Celliers)</td>
<td>Artificial Urethral Sphincter placement for urinary incontinence (Ross Elliott)</td>
<td>Meticillin-resistant Staphylococcus aureus in pig farming (Shani van Lochem)</td>
<td>Standard equine radiographic views, their worth &amp; basic radiological anatomy (Nicolene Hoepner)</td>
<td>&quot;Sleep Deprivation&quot; and the debilitating impact on optimal performance among veterinarians – A practical guide to understanding sleep architecture, sleep disorders and remedial interventions (Hermann Liebenberg)</td>
<td>Breaking the cycle of burnout (Des Rees)</td>
<td>Zoonotic disease awareness of one health stakeholders, Gauteng, 2016 (Krpasha Govindasamy)</td>
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<tr>
<td>10.00-10.30</td>
<td>Tea</td>
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<tr>
<td>10.30-12.00</td>
<td>Plenary session: Remuneration for Vets</td>
<td>Product show case Virbac Animal Health (20 min) – Sr Tracey Phillips</td>
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<td>12.00-13.00</td>
<td>Lunch</td>
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<tr>
<td>13:45-14:30</td>
<td>Acute Phase Proteins in diagnosis with emphasis on CRP (Fred Reyers)</td>
<td>How to ensure the best possible outcome in intestinal surgery (Charlie Boucher)</td>
<td>Technologies in the farming industry and their potential to help veterinarians (Emiliano Raffrenato)</td>
<td>Current surgical techniques for removing fractured molars (Ingrid Cilliers)</td>
<td>Conflict management as encountered by veterinarians – focus on dealing with eg. difficult clients, basic Practice management and ethical considerations (Hermann Liebenberg)</td>
<td>Paediatrics vs geriatrics (Sr Tania Serfontein)</td>
<td>Serological analysis of Brucella serum and milk samples with in-house iELISA converted on luminex xmap technology (Maphuti Betty Ledwaba)</td>
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<td>14:35-15:15</td>
<td>Update on point of care tests for the diagnosis of CPV, CDV, FIV, and FeLV (Denis York)</td>
<td>Approach to the dyspnoeic brachycephalic patient (Sara Boyd)</td>
<td>The influence of dam nutrition on offspring's performance (Giulia Esposito)</td>
<td>Current therapies available for joints/ tendons (Ingrid Cilliers)</td>
<td>Practice Management 101: Inventory (Henry Annandale)</td>
<td>&quot;Anaesthesia preparation&quot; Minimising the side effects (Sr Tania Serfontein)</td>
<td>Isolation and whole genome analysis of a lytic bacteriophage infected Bacillus anthracis isolate from Pafuri, South Africa (Ayesha Hassam)</td>
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<td>&quot;Brainspotting&quot; for veterinarians — A new and revolutionary Neuro-physiological evidence based psychotherapeutic breakthrough in dealing with stress, burnout, trauma and various other emotional challenges (Hermann Liebenberg)</td>
<td>Creating fabulousfur kids, setting young animals up for success (Dr Quixi Sonntag)</td>
<td>Clinical expression of African horse sickness in South African horses (Megan Riddin)</td>
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<td>15:45-16:25</td>
<td>Outbreak of canine distemper in dogs owned by low-income families in Mozambique (Custodio Bila)</td>
<td>Technique for emergency tracheostomy (Charlie Boucher)</td>
<td>Heifer and calf nutrition: much more than growth (Emiliano Raffrenato)</td>
<td>Enhancing Wound Healing in Horse — Part 1 (Johan Marais)</td>
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♦ These talks are earmarked for veterinarians that qualified in the last 5 years
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ABSTRACTS

PLENARY SPEAKER — WEDNESDAY 26 JULY 2017

ANTIMICROBIALS – WHY THINGS HAVE TO CHANGE

Neil Forbes BVetMedDipECZM (Avian) FRCVS
Great Western Exotic Vets, Vets Now Referral Hospital, 10-16 Berkshire House, County Park Estate, Swindon, United Kingdom
Email: neil.forbes2011@yahoo.co.uk

The Age of Antibiotics – here today (just), gone very soon, so what next. In 2014, the World Health Organisation (WHO) described the onward development of antimicrobial resistance (AMR) as a major global threat. Dame Sally Davies UK Chief Medical Officer stated it was as serious as global warming. But it was all happening faster than expected. Resistance to antibiotics for E.coli urinary tract infections “virtually zero” in the 1980s, now ineffective in >50% cases. It was suggested that in 20 years, treatments such as chemotherapy and simple surgery would become impossible because they relied on antibiotics, also that we were facing a future where a cough or cut could kill once again.

200,000 humans die globally each year due to antibiotic resistant tuberculosis alone, 27.6% of tuberculosis cases in Africa are caused by multi resistant strains.

In India alone 600,000 neonatal deaths occur each year due to bacterial infections.

TUESDAY 25 JULY 2017

SMALL ANIMAL MEDICINE

RECOGNIZING ENDOCRINE DISEASE

Remo Lobetti

Endocrine conditions are not uncommon clinical entities in small animal practice that affect both dogs and cats, with clinical signs being a combination of PuPd, polyphagia, obesity or weight loss, and alopecia. Common endocrine disorders in the dog are Cushing’s disease, Addison’s disease, diabetes mellitus, and hypothyroidism, whereas diabetes mellitus and hyperthyroidism are common in the cat. Rare endocrinopathies include feline Cushing’s disease, hyperaldosteronism, diabetes insipidus, acromegaly, hypopituitarism, and phaeochromocytoma. Other conditions that may have an underlying endocrine anomaly include hypoglycaemia (insulinoma), hypercalcaemia (hyperparathyroidism), and hypocalcaemia (hypoparathyroidism).

INTERPRETATION OF ENDOCRINE TESTS

Johan Schoeman

The interpretation of endocrine test results can be difficult. This is due to the dynamic nature of the endocrine responses to both internal and external factors that challenge homeostasis. A wide range of results can thus be within the normal range. Since the fine line between normal and abnormal is often not so clear-cut, clinicians should view results within the context of a thorough understanding of normal endocrine physiology and a clear appreciation of the diagnostic performance properties of various endocrine tests. The paper will address aspects of diagnostic performance such as sensitivity and specificity; negative and positive predictive value and the effect of prevalence on these. In addition, various non-endocrine factors such as breed, age, time of day, drugs and concomitant non-endocrine diseases will be discussed. Next, the effect of other endocrine disease and their attendant pathophysiological changes, such as hyperlipidaemia and endogenous antibodies on the analytical validity of tests, will be mentioned. Finally, the effect of symptomatic or palliative therapy on the subsequent interpretation of endocrine tests will be covered.
EUTHYROID SICK SYNDROME REVISITED

Johan Schoeman

Non-thyroidal illness and certain drug therapies have a profound effect on circulating thyroid hormones. As a result, many dogs are erroneously diagnosed with hypothyroidism. Clinicians should be acutely aware of this potentially serious misdiagnosis, which can result in long periods of unnecessary thyroid replacement therapy and great difficulty in confirming the diagnosis after the thyroid gland has been iatrogenically suppressed by such therapy. The causes of this reduction in thyroid hormones by non-thyroidal illness, which is termed, euthyroid sick syndrome (ESS) are multifactorial. These include: glucocorticoids and circulating cytokines, such as interleukins and tumour necrosis factor. They act on the hypothalamic-hypophysial-thyroid axis and, inter alia, can cause TSH suppression, decreased intrinsic thyroid hormone activity, reduce thyroid hormone protein-binding and altered peripheral hormone conversion and metabolism. This paper will address some of the common causes, recently elucidated pathomechanism and the extent and longitudinal duration of some of these changes, especially as they manifest in severe inflammatory disease.

FELINE HYPERTHYROIDISM

Joanne McLean

Feline hyperthyroidism is a metabolic disease of middle-aged to older cats that has shown a marked increase in its worldwide prevalence within the last three decades. This disorder is now recognised as the most common feline endocrinopathy in many countries. Since the first clinical reports of the disease appeared in the literature in 1979, our understanding of the disease has evolved tremendously. Initially, it was a disease that only referral clinicians treated, but is now a clinical entity that most primary clinicians routinely manage. Inclusion of the measurement of T4 concentration in senior wellness panels, as well as in diagnostic work-ups for sick older cats, now enables diagnosis of the condition long before patients demonstrate the classic clinical signs associated with disease. However, earlier recognition of the problem has given rise to several related questions: how to recognise the health significance of the early presentations of the disease; how early to treat the disease; whether to treat when comorbid conditions are present; and how to manage comorbid conditions such as chronic kidney disease and cardiac disease. After establishing a diagnosis, the clinician and client are then also faced with choosing the most appropriate treatment option. The choice of therapy often depends on factors such as the cat’s age, comorbidities, treatment cost, availability of treatment options, and the clinician’s recommendation and expertise. The goal of therapy is to restore euthyroidism, avoid hypothyroidism and minimise side effects of treatment. As a result of better awareness of the disease, routine screening tests and a variety of readily available treatment options, the hyperthyroid cat will however often live for an extended period (2-4 years) in appropriately managed cases.

UPDATE ON ADDISON’S DISEASE

Johan Schoeman

Hypoadrenocorticism (HA or Addison’s disease) is an uncommon condition in dogs, characterized by a severe deficiency in adrenocortical hormone secretion. Most dogs have immune-mediated destruction of adrenocortical tissue (primary HA), yet the disorder may also develop because of dysfunction of any part of the hypothalamic-pituitary-adrenal axis (secondary and tertiary HA). Besides, at least 90% of the adrenal cortex needs to be non-functional before associated clinical signs are observed. The historical, clinical and biochemical changes in this disorder have been well-described. Lately, a number of papers have been published on the atypical form of this disease, in which destruction of part of the adrenal cortex is postulated. As a result of this, diagnostic testing had to be refined and clinicians are now required to increase their index of suspicion for this form of the disease. Moreover, and as a direct consequence of the advances in diagnostic testing and monitoring, new treatment regimens have also been developed. Therefore, this paper will focus on the recent advances in the diagnosis and treatment of Addison’s disease in the dog.

MANAGEMENT OF CANINE CUSHING’S DISEASE

Varaidzo Mukorera

Canine hyperadrenocorticism (HAC) is a disease resulting from overproduction of cortisol. Overproduction of cortisol in dogs is mostly via excessive production of ACTH from the pituitary gland and less commonly from excessive cortisol derived from overproduction by the adrenal glands. The management options for canine HAC include medical therapy with a variety of drugs, surgery to remove either the pituitary gland or affected adrenal gland, radiation of the pituitary gland or some combination of these. The most commonly used drugs for the management of HAC are trilostane and mitotane. The current gold standard for monitoring medical treatment is the adrenosortical stimulation test.
DIABETIC KETOACIDOSIS AND HYPERGLYCEMIC HYPEROSMOLAR SYNDROME

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Diabetic ketoacidosis (DKA) is characterized by hyperglycaemia, glycosuria, and ketonaemia or ketonuria with a metabolic acidosis. Hyperglycaemic, hyperosmolar syndrome (HHS) is characterized by severe hyperglycaemia (>600 mg/dl), minimal or absent urine ketones, and serum osmolality > 350 mosm/kg. Both types of crisis can develop in a diabetic animal subsequent to increases in diabetogenic hormones that occur in response to an underlying stressor, such as concurrent disease. Treatment for both crises starts with fluid therapy, which will replace vascular volume and reduce blood glucose via dilution and increased renal losses. Abnormalities in potassium, magnesium, and phosphorus are common and any deficiencies must be resolved before initiating insulin therapy. The goal of insulin therapy is to reduce blood glucose by 50-70 mg/dL/hr. Insulin is vital to reversing ketone production and acidaemia in DKA. Because of the importance of GFR on pathogenesis, insulin is less important to reverse HHS.

CRITICAL CARE

FLUID THERAPY

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Fluids are a double edged sword. Too much and too little are both detrimental to health. Unfortunately there is no perfect tool to assess fluid therapy and careful assessment and regular reassessment is required. We have a large choice of fluids and the perfect fluid does not exist. This talk will address the controversies of fluid therapy and attempt to give rational advice and guidance on how we should use fluids. It important that fluids are given on a goal directed approach. Fluids should be given to achieve a resuscitation end point not just a particular volume. This approach along with cardiovascular support is vital for successful management of patients.

TOXICITIES: TREATMENT AND PRINCIPLES

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The initial management of the poisoned patients should include stabilisation of the patient after which a good history should be obtained from the owner. Once stable decontamination of the patient can take place. Decontamination inhibits or minimises further absorption of the toxin and promote its excretion or elimination from the body. It can include bathing, dilution, induction of emesis, gastric lavage and the use of absorbents and cathartics. Intravenous lipid emulsion therapy is being used more and more in veterinary medicine for the treatment of patients that have been poisoned with lipophilic compounds. ILET is a relatively cheap and easy to administer, and is considered comparatively safe, but should only be used in cases where the standard of care or antidote therapy is cost prohibitive or the toxicosis is severe enough to require non standard interventions, and the owner has given consent.

CRITICAL CARE NUTRITION IN SMALL ANIMALS PART I

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The basics of critical care nutrition apply throughout all disease states. These basics include, an initial nutritional assessment, prescribing an appropriate diet for that specific condition, taking the patients present state in mind, setting goals for the nutritional intervention, and finally assessing whether these goals are in fact being met. The goals of critical care nutrition are to meet resting energy requirements as well as to supply sufficient essential and conditionally essential amino acids and all other micro and macro nutrient needs. A plethora of methods are available to us to achieve this, including a variety of diet and tube options for the still preferred enteral nutrition route as well as multiple solution options and peripheral and central line options for parenteral nutrition. In some cases, partial parenteral and enteral nutrition best supplies the patient’s nutritional needs. Nutritional assessment and monitoring, and methods, indications and complications of critical care nutritional interventions are all discussed in this lecture.
CRITICAL CARE NUTRITION IN SMALL ANIMALS PART II

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The basics of critical care nutrition were covered in Part I. In Part II a few disease states are briefly discussed including, nutrition in the septic patient, nutrition in acute liver disease, nutrition in kidney disease, nutrition in pancreatitis and refeeding syndrome. Although the basic principles of critical care nutrition apply in all disease states, some require specific interventions and monitoring.

VETERINARY NOSOCOMIAL INFECTIONS

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Veterinary hospital acquired infections are a matter of fact, with an incidence of 4-9% (Mielke, 2010), compared to a human level of 5-10% (Burke, 2003). Hospitals are occupied by sick patients. Nosocomial infection outbreaks, with differing aetiologies have been documented, a significant percentage of which have been zoonotic infections (Milton et al 2015). A nosocomial (hospital acquired), infections are contracted in a hospital environment, arising between 48 hours following admission, up until 30 days following discharge. Common nosocomial infections in the veterinary hospital include urinary tract infections, surgical wound infections and infectious diarrhoea. Historically efforts focused on the control of infectious diseases such as canine parvovirus, more recently it is the control of infectious zoonotic diseases such as MRSA, C. difficile and MRSP that have taken precedent. It is accepted that such infections are endemic within veterinary hospitals. The longer a patient is hospitalised, the more invasive the procedure (e.g. i/v or urinary catheters), the greater the risk.

With the now necessary reduction in the use of prophylactic antibiosis for hospitalised surgical and medical cases, all practices must re-harness the old adage ‘Cleanliness is next to Godliness’, returning to the days of Florence Nightingale, when cleanliness and infection control was taken very seriously in all hospitals, knowing that a lack of infection control was a matter of life and death.

This presentation will tackle practical aspects of cleaning, disinfection, fomite identification and most importantly measuring the efficiency of biosecurity management using Adenine Triphosphate testing to verify cleanliness.

REFERENCES


RATIONAL ANTIBIOTIC USE: SHOULD YOU REALLY BE USING THAT?

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Antimicrobial resistance is one of the fastest developing and far-reaching issues of our time. Small animal veterinary practice is not untouched and has an important role to play in the prevention of antimicrobial resistance development. Most veterinarians in South Africa prescribe antibiotics empirically prior to doing investigative diagnostics. To be able to make rational antibiotic choices there is a need for geographical epidemiological data on resistance patterns of common isolates, which is lacking for small animal veterinary practice in South Africa. Other principles such as considering the true need of antimicrobials, de-escalating therapy and treating for the shortest possible duration may further improve responsible antimicrobial use. The owner, veterinarian, local bacteriology laboratory and other relevant health services all have equally vital roles to play in the success of prudent and responsible antimicrobial use.
Correct evaluation and assessment of fracture patients in their entirety is essential to applying the correct treatment protocols. Fractures are seldom if every life threatening injuries. It is essential that life-threatening injuries (thorax, abdomen etc.) are evaluated and treated first. Once stabilised treatment for the fracture may be performed. The fracture must be assessed, classified and an appropriate fixation method chosen for that particular fracture in that specific patient. Surgeon experience and preference is another important factor in decision making with respect to fracture management.

BASICS OF EXTERNAL SKELETAL FIXATION

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External skeletal fixation is one of the most versatile tools available to the veterinary surgeon when dealing with orthopaedic problems. Mostly fractures are treated but these systems are very useful when treating abnormalities of skeletal development and ligamentous injuries. They are often used to augment surgical repairs of difficult fractures or when treating complications of some standard repair methods. This presentation will give an overview of the basic principles used when applying these techniques and also some practical guidelines that can be used in everyday practice. If one ignores the basic rules then failure can be expected therefore very important to understand the application guidelines.

APPROACH TO FRONT LIMB LAMENESS

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The majority of synovial joints in the dog are subjected the significant stress during weight bearing. This requires a joint, which is highly resistant to wear and tear and one that allows almost frictionless movement. There are numerous conditions, which affect the joints of the canine forelimb. Early diagnosis and treatment is crucial to effective treatment and therefore improved prognosis. Arthroscopy allows minimally invasive surgery of joints and has significant advantages over arthrotomy. These advantages include rapid recovery and reduced morbidity, ability to treat multiple limbs simultaneously, improved visualisation of intra-articular structures. Shoulder lameness and elbow dysplasia are two conditions were arthroscopy has allowed improved early diagnosis and treatment. Many conditions causing shoulder lameness present with similar symptoms and radiographic signs, arthroscopy therefore allows accurate diagnosis via a minimally invasive modality. All joint disease has the potential to result in the development of osteoarthrosis. Osteoarthrosis is a chronic progressive degenerative joint disease. Treatment includes long-term conservative management and in some cases surgery (joint replacement, arthrodesis, arthroplasty). Common causes of shoulder lameness in dogs includes OCD of the caudal humeral head, tenosynovitis of the biceps tendon, medial shoulder instability, incomplete ossification of the caudal glenoid rim and mineralization in the tendon of insertion of the supraspinatus muscle. Diagnosis of these conditions relies on careful clinical examination, radiology, ultrasound and importantly arthroscopic examination. Elbow dysplasia is a common cause of forelimb lameness in young large breed dogs. Diagnosis can be challenging and again arthroscopy can play and important role in early diagnosis and treatment. Types of Elbow dysplasia include Fragmented Medial Coronoid (FMCP), OCD of the medial humeral condyle, Ununited anconeal process (UAP) and elbow incongruency.

APPROACH TO HINDLIMB LAMENESS

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The aim of this talk is to provide the general practitioner with a systematic guide to the approach to canine lameness in general practice. Identification of the clinically significant anatomical region eases diagnosis of the underlying disease process. Diagnostic aids and basic tests will also be discussed. Careful history taking from the owner is the first step to finding the source of the lameness. Video footage taken by owners is a very useful tool, as dogs often do not show the severity of the lameness or the lameness at all when in a clinic/hospital environment. Physical examination must be performed methodically and must always be the same to have a routine the clinician can rely on. If these first steps are done in a thorough manner then finding the source of the lameness should be a lot easier. Now one can start using diagnostic tools to our disposal like radiography, joint cytology, magnetic resonance imaging, computed tomography, ultrasonography etc. Without finding the source and cause of the lameness one will not be able to treat the condition with reasonable success.
TECHNIQUES FOR REPAIR OF CRANIAL CRUCIATE LIGAMENT DISEASE
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Cranial cruciate disease is the most commonly encountered cause of lameness seen in small animal practice. Numerous surgical techniques have been described for the treatment of cranial cruciate deficient stifles in the dog. Broadly speaking two types of surgical techniques may be used, either an extracapsular stabilization technique or one of the tibial osteotomy techniques. Extracapsular stabilization techniques include lateral sutures, fascia lata grafts and more recently the TightRope technique by Arthrex. Tibial osteotomy techniques started with the cranial closing wedge osteotomy as described by Slocum. The Tibial Levelling Osteotomy (TUPELO) was the next procedure developed by Slocum. Other tibial osteotomy techniques include the Tibial Tuberosity Advancement (TTA), the Triple Tibial Osteotomy (TTO), the Tibial Tuberosity Advancement Rapide (TTAr), Modified Maquet Procedure (MMP) and the CORA Based Levelling Osteotomy (CBLO). All these tibial osteotomy procedure may be grouped together as Mechanical Modifying Osteotomies (MMO) or Geometric Modifying Osteotomies (GMO) and appear to give the best long-term results.

SURGICAL OPTIONS FOR THE REPAIR OF CANINE HIP DYSPLASIA
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Canine hip dysplasia (CHD) is a heritable condition with abnormal development of the femoral head and the acetabulum. Initial joint laxity leads to secondary changes in the bone and soft tissue structures of the coxofemoral joint. This degeneration leads to osteo-arthritis later. Although we have many options to treat CHD and do so quite successfully, prevention of the condition through selective breeding has failed to eradicate the condition. Schemes to try and reduce the incidence of this condition evolve all the time and so does the approach to treating these cases. The majority of dogs seen in practice are treated non-surgically. In my opinion veterinarians overestimate the degree of success achieved with these protocols. Many patients presented in referral practice arrive in significant pain with owners that are under the impression that their pet’s pain is well controlled. Surgery for these dogs have come a long way and success rates are fairly high with regards to pain relief and return to function. This paper will aim to give the clinician a systematic approach to these cases and provide information on the different techniques available for surgical repair of Canine hip dysplasia.

MEDIAL PATELLA LUXATION IN CANINES
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Medial patella luxation is an extremely common condition of both small and large breed dogs. It is most commonly seen in small breed dogs but the prevalence is increasing in large breed dogs. Medial patella luxation usually occurs together with a conformational deformity of the femur. This needs to be taken in to account in the correction of this condition. Surgical correction consists of soft tissue reconstruction and bone correction to correct the alignment of the patella mechanism. The complication rate with surgical correction remains high with the most common complication re-luxation of the patella. The current thinking is to investigate correction of the underlying conformational deformity to prevent this re-luxation. Correction of this femoral deformity should be made on measurements of the centre of rotation of the femur to quantify the degree of the corrective osteotomy. Femoral corrective osteotomies are technically difficult surgery but the recent results of success are very promising.

PRODUCTION ANIMALS

AN UNUSUAL CASE OF RABIES IN MUTTON MERINO SHEEP IN THE NORTH WEST PROVINCE, SOUTH AFRICA
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There have been recent outbreaks of rabies in South Africa, mainly in the Kwa-Zulu Natal province but also elsewhere. Infections in sheep in South Africa are rare. The following wildlife have been identified as carriers that transmit the virus to humans: yellow mongooses, genets, unspecified wild cats, caracals, honey badgers and chacma baboons. Jackals and bat-eared foxes have also been identified as carriers that may transmit the virus to domestic animals. An outbreak of rabies in a Mutton Merino flock as a result from a predator attack is described. The vector is identified and the behaviour of the predator is described as well as how it could have gained entry. All seven sheep that survived the predator attack died within 38 days. Forty-five days after the predator attack, one sheep that had not been attacked by the predator died and tested positive for rabies suggesting horizontal transmission in this flock. Differential diagnoses, post-exposure prevention of infection and future prevention are discussed.
CREATING RABIES AWARENESS IN A RURAL COMMUNITY
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Rabies is an endemic disease in South Africa, killing thousands of people every year in Africa and Asia. Rabies control requires regular vaccinations of dogs, as dogs are the main source of rabies in South Africa. In spite of the rabies vaccine being readily available free of charge, and regular vaccination campaigns by the state and private sector, some communities are not taking responsibility for rabies vaccinations.

BRUCELLA ABORTUS – A FRUSTRATING HERD DISEASE
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No paper submitted

BRUCELLOSIS KNOWLEDGE, ATTITUDES AND PRACTICES OF CATTLE KEEPER IN A RURAL COMMUNITY IN THE EASTERN CAPE, SOUTH AFRICA
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Brucellosis has been identified globally as a neglected zoonosis. Poverty is a strong risk factor for brucellosis, especially in resource-limited areas that still rely heavily on livestock keeping for survival. In South Africa, bovine brucellosis is currently not well controlled and poses a threat to both livestock production and public health. The aim of this study is to determine the current Knowledge, Attitudes, and Practices (KAP) of cattle keepers, regarding bovine brucellosis, in a rural communal farming community in the Eastern Cape Province.

ECONOMIC SUCCESS FARMING WITH SHEEP AND CARNATIONS
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Maluvha Nursery is a 30 hectare carnation producing farm. Buildings cover seven and a half hectares: greenhouses, offices, storerooms and staff living quarters. Ten hectares are outside the security perimeter and only the firebreak needs to be maintained because it borders a nature reserve. All other open land is covered with a variety of veld grasses and kikuyu that need constant maintenance to keep pests from the grass affecting the flowers in production.

Maintenance entails daily trimming with brush cutters or “weed eaters” controlled by 3 individuals. There is a lot of trimming close to the greenhouses and hard to reach places that took 5 days a week, 9 months of the year. During the remaining 3 months of winter, the grass could be trimmed every 4 weeks, giving time for machinery maintenance. The larger areas between greenhouses were trimmed every second week with a tractor driven slasher/mower. Again, during winter, maintenance of the implements and tractor took place. During 2012, the annual expenditure to maintain the open land grasses amounted to 125000 SA Rands. The costs were expected to increase drastically as labour costs and maintenance and replacement costs of machinery keep increasing. This system requires 6 individuals for different tasks: three for “weed eater” work; one for operating the tractor with mower; and a further 2 individuals remove carnation “wastage” daily form the packing store to the composting heaps.

Three hundred sheep were introduced to the farm during 2013 and since then, all the above tasks have been carried out by 3 individuals, employed on a part time basis. The sheep are kraaled at night and let out for grazing in the morning by 9:00. In the afternoon, the sheep are brought back in the kraal by 16:00. The rest of the day the workers are tending to carnation harvesting and plant health. The removal of the carnation wastage is also done by the same 3 workers. The carnation wastage is fed to the sheep on returning to the kraal and excess wastage is composted with sheep faeces. The workload of the 3 individuals increases during the six-week lambing season once a year. Since 2014, the cost of keeping the sheep amounts to 45000 SA Rands per annum and remains stable and includes 2016. This figure takes the following sheep related costs into account: labour; supplement feed, veterinary costs and maintenance of sheep facilities.

Maluvha Nursery now has the advantage of well-maintained grass all around the farm with 90% less labour. Good quality “kraal manure” is compost in half the time that it took the carnation waste to compost. The carnation has high protein content and as such is a palatable protein feed supplement for the sheep. The carnation planting season starts at early winter (April/May) and ends in summer (December/January). That is exactly when the grazing on the farm is in short supply. Carnations are also rich in minerals and receive fertilizer in a semi hydroponic system.
DIFFERENTIAL EXPRESSION OF TICK-RESISTANCE RELATED GENES FOLLOWING ARTIFICIAL INFESTATION WITH R. MICROPLUS AND R. DECOLORATUS TICKS

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The objective of the current study was to conduct gene expression analyses using real-time PCR data of RNA extracted from skin biopsies collected 12-hours post artificial infestation with R. microplus and R. decoloratus ticks. Expression profiles of 17 previously identified immune function-related genes were studied in Angus, Brahman and Nguni cattle. The panel of genes included cytokines (TLR5, TLR7, TLR9, TRAF6, CD14), chemokines and their receptor (CCR1, CCL2, CCL6), toll-like receptors (IL-1β, CXCL8, IL-10, TNF) and other candidate genes (BDA20, OGN, TBP, LUM, B2M). The expression level displayed by the Brahman cattle differed significantly from those of the Angus cattle for genes LUM, TBP, TRAF6 and B2M. Most of the differences were of genes encoding products of the extracellular matrix primarily involved in tissue repair. Important among which was LUM, and to a lesser extent B2M, which had expression levels significantly higher in the Brahman and Nguni cattle as opposed to the Angus cattle, thus presenting LUM as a potential biomarker for tick resistance. There was no evidence of breed by tick species interaction, implying that the effect of host-tick association was not responsible for gene expression post infestation.

COMPARISON OF IMMUNOLOGICAL RESPONSES IN ANCIENT AND MODERN TICK-HOST INTERACTIONS

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The objective of the current study was to compare tick counts, inflammatory cell counts and histopathological scores in skin biopsies from feeding sites of larval R. decoloratus and R. microplus ticks in Angus, Brahman, Nguni cattle to establish immunological responses at the tick-host interface of ancient and modern tick host associations. The Brahman breed displayed lower (p<0.01) tick counts compared to both the Nguni and Angus breeds. No differences between breed or tick species groups were observed within the number of cellular infiltrates or histopathology scores. It was concluded that a specific evolutionary relationship is not necessarily the primary contributor to the manifestation of the resistant phenotype and a high level of cross resistance is possible. Immunological parameters are important when assessing tick-host relationships, but the influence on the host includes a wider range of factors. The 12-hour interval is promising for further investigations, but higher intensities of infestation are recommended to increase the reliability of assessments.

ANIMAL WELFARE

LEGAL PROTECTION OF ANIMALS

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What is the link between law, animal welfare and human rights? Is there a connection at all or are these mutually exclusive concepts? I argue that there is a link between these concepts. This is based on three principles. The first is the notion of power. Human rights and law are both embedded in systems of power and, in the modern constitutional age, these systems are being refined to ensure that those with power do not abuse those without. The second principle relates to the language and purport of the Constitution. For example, the Constitution refers to the rights of ‘everyone’ to life, dignity, health and bodily integrity. The word ‘everyone’ is not defined to mean every human being. Of course it would be fallacious to argue that the drafters of the Constitution intended to include non-human animals in the purview of the Bill of Rights. However, the Constitution is designed to be a transformative instrument to transition South Africa from apartheid to the era of democracy. This transformative aspiration is one that can and should be applied to all systems of oppression, especially in respect of the meat industry. The final principle relates to the link between the violation of animals and the violation of humans. If we prefer to take a human-centric approach to the protection of animals, we need to be insightful and honest about the way in which the meat industry harms human health, access to food and water, access to land and the continuum of poverty.

THE IMPORTANCE OF VETERINARIANS IN SUPPORTING ANIMAL WELFARE LEGISLATION

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Veterinarians play a critical role in both promoting the good care of animals and forwarding good animal welfare principles in terms of animal management. However the role of the Veterinarian also extends into the field of animal protection where their contribution and involvement can play an integral role in supporting the judicial process with the consequent effects of protecting communities as a whole.

This presentation acknowledges the value and role of veterinarians in general society but then goes on to explore this evolving role in
more detail, especially in the ever changing local context. We review the South African dynamics affecting animal protection including economic challenges, environmental concerns and high levels of violence and the participative and committed approaches necessary to overcome these.

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THE PERFORMING ANIMALS PROTECTION ACT AND HOW IT AFFECTS PRIVATE AND STATE VETERINARIANS: ARE WE READY FOR THIS ACT?

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The Performing Animals Protection Act (previously Act 24 1935) was recently amended, following a court challenge. In terms of the court order, the Department of Agriculture, Forestry’s and Fisheries (DAFF) will now administer the Act. The Act states that “Any person who intends to exhibit an animal; trains an animal to be exhibited; or uses an animal for safeguarding”, will now have to be inspected by trained state veterinarians and delegated animal scientists at least once a year. Inspections will be done in terms of a Veterinary Procedural Notice (VPN) developed by the Animal Welfare Working Group under the auspices of DAFF. As it is not expected that state veterinarians have a detailed knowledge of diseases and welfare of exotic animals, the inspectors will rely on the input of the private veterinarians who consult at these facilities. It has been observed, that many veterinarians, while very conversant with the diseases of these animals are not as conversant with current welfare norms and standards. In an effort to ensure that state veterinarians are fully conversant with not only general welfare requirements but also specific welfare requirements and to provide guidance for the inspections, eight hour training sessions were undertaken in all provinces to familiarise them with welfare issues pertaining to zoos and circuses as well as the VPN and how to do inspections. We believe that this training has created awareness of many of the issues associated not only with zoos circuses and guarding dogs but also issues of animal transport and slaughter. Welfare issues are no longer optional for veterinarians, but are essential to all the work that we undertake. If the profession does not take cognisance of this development, we believe that we will lose an opportunity to lead the way to science based progressive welfare.

BRACHYCEPHALICS – AN ANIMAL WELFARE DISASTER!

Dale Neves

No paper submitted

THE DONKEY SKIN TRADE AND OTHER CHALLENGES FACING WORKING DONKEYS IN SOUTH AFRICA

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Donkeys are a critical and integral part of the lives of many of the most disadvantaged members of South African society, who rely on them essentially for transportation and draught power in agriculture.

Donkeys are remarkably tolerant and resilient animals that are able to survive in the most challenging environments and are widely used throughout sub-Saharan Africa. Working donkeys can be used by women and children without infringing on any cultural barriers, their size and temperament make them relatively safe and easy to handle and their remarkably tolerant constitution results in them surviving and working even when the most basic of care is lacking. The valuable role donkeys’ play in sustaining disadvantaged communities is typically unrecognised and it is largely left to NGOs such as the NSPCA to provide primary care to working donkeys and education and training to their owners.
The Donkey Skin Trade is a new and serious challenge that has had significant impact on both donkeys and their owners. The presentation explores key areas of concern issues relating to working donkeys and their communities with the goal to create awareness and helpful dialogue and action.

RECOMMENDED READING

- Under the Skin, Donkey Sanctuary UK, January 2017, Published by Donkey Sanctuary, Slade House Farm, Sidmouth Devon.

MONITORING PHYSIOLOGICAL INDICATORS OF STRESS DURING TRANS-RECTAL PALPATION OF THE REPRODUCTIVE TRACT IN MARES USED FOR TEACHING

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It is important to manage potential stress experienced by animals used in teaching veterinary students various clinical procedures so as to not compromise animal welfare standards. In this study the potential stress experienced by mares during transrectal palpation of the reproductive tract by veterinary students was assessed by means of heart rate variability (HRV) and endocrine stress-related indicators (salivary glucocorticoid- and faecal glucocorticoid metabolite concentrations). The technique evaluation and standardization confirmed that care should be taken when interpreting HRV results as correction factors can have an influence on the HRV indicators and heart rate measures. In addition, the repeatability and reliability of heart rate measures and HRV indicators may differ depending on the environment (unrestricted vs. restricted movement) being assessed. Although endocrine stress-related indicators did not indicate an overall stress response, the sympathetic-adrenomedullary system (HRV) was able to identify short-term variations in autonomic cardiac control during palpation. Furthermore, the most significant shifts towards the sympathetic component were recorded during the first 5 minutes of palpation and 85 minutes after the start of palpation. The prominent vagal response in the initial stage of palpation may be attributed either to recognition (prediction of outcome) of the procedure or visceral pain. The age and experience of the habituated horses did not influence their stress response. In summary, the 20 minutes palpation period, restricted to one student, was tolerated well by the mares accustomed to the procedure, but the stress response after 55 minutes restricted movement was pronounced.

BEHAVIOUR

OVERVIEW OF INTER-DOG AGGRESSION

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Inter-dog aggression between household dogs is one of the most severe behaviour conditions. Severe injury is most common. In inter-dog aggression there is a consistent voluntary aggression towards another dog that is out of context given the social signals, threat circumstances or the response from the receiver of the aggression. At least one of the four skill sets that normal dogs should possess is impaired in the aggressors in inter-dog aggression. Dogs who exhibit out-of-context or inappropriate responses to other dogs actually suffer from anxiety disorders. The aggressor tries to control the victim through the use of subtle threats and challenges, which include displacement of the victim, control of the victim, and the threat of the victim. In the development of this condition there will be more posturing and vocalisation, but as the condition progresses these clear signs diminish. Snarls become silent and attacks may occur with little or no warning. Management is the key part of treating this condition. The success of behaviour modification will depend on the depth of the pathology of the aggressor and how early in the course of the violence the problem was recognised. Medication might be indicated, and might be needed for the aggressor and the victim.

OVERVIEW OF HUMAN DIRECTED CANINE AGGRESSION

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Canine human directed aggression is a common reason for owners to request a behaviour consultation. Human directed aggression is not always motivated by the desire to control but is often associated with underlying anxiety, conflict, and poor communication or the lack of clear rules and structure between the owner and the pet during social interactions. The client should be asked to describe the body posture of the dog before, during and after an episode. This will help to determine the underlying reason for the aggression. Causes for aggression include fear, possessive aggression, redirected aggression and impulse control aggression (previously termed dominant aggression). The treatment is aimed at controlling the problem, not achieving a ‘cure’. Treatment consists of management, structuring the owner pet relationship, behaviour modification and psychotropic drugs. When dealing with human directed aggression a risk assessment should be included. Aspects evaluated include predictability, potential to cause damage, the characteristics of the family and the complexity of the whole situation.
COMPULSIVE DISORDERS IN DOGS

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Compulsive disorder (CD) describes a sequence of movements usually derived from normal maintenance behaviours that are performed out of context in a repetitive, exaggerated, ritualistic and sustained manner. They must be sufficiently pronounced to exceed what is necessary to meet its apparent goal or such that it interferes with normal functioning. The terms such as conflict-induced behaviour, frustration induced behaviour; displacement behaviour, redirected behaviour and vacuum activity are commonly used. Compulsive disorders initially originate from behavioural arousal, stress, conflict and frustration, which can lead to anxiety or displacement behaviours. Compulsive behaviour appears to develop when the animal discovers that multiple repetitions of a ritualised behaviour produces a reduction in arousal and frustration. Acral lick granuloma and tail chasing are common CD in small animals. Treatment is multi-modal and should consist of management, environmental changes, behaviour modification techniques and psychotrophic medications.

NOISE PHOBIA WITH EMPHASIS ON THUNDERSTORM PHOBIA IN DOGS

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Sonophobia (noise) is the commonest phobia in dogs; many of these develop from loud noises that have created a severe sound sensitivity and generalisation. Fear is part of normal behaviour, is essential for survival and is a highly adaptive response. Phobia, however, is always maladaptive and can seriously affect the individual by limiting its ability to engage in normal responses. Thunderstorm phobia is a sudden and profound, non-graded, severe response to thunderstorms or any aspect of them. How a dog reacts to certain stimuli depends on genetic influences as well as through learning and experiences. They can respond in an active way or have a passive response. Behaviour includes pacing, panting, hiding, shaking, elimination and vocalisation. Treatment consists of immediate treatment when the threat of noise is unavoidable as well as long-term resolution of the problem. Treatment should have a multimodal approach and includes environmental management, behavioural therapy, pheromone treatment, pharmacological therapy and complimentary medicine. Although many cases will improve, some pets may still show some response to noise after treatment and some animals may need lifelong treatment.

IMPROVING THE PETS’ EXPERIENCE AT THE VET

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A visit to the vet can be quite a fearful experience for the pet. However, there are several aspects that can be changed to improve the emotional state of the animal while at the hospital. Small changes can be made to the physical aspects of the hospital including the waiting area, the scale, the consulting room and the kennel area. The way the staff approach and interact with the pet is often unintentionally threatening to the pet. Every staff member must be able to recognise the signs of fear and anxiety, and act appropriately when these signs are seen. There are several low stress handling techniques that would make the handling and restraint less stressful for the animal. Veterinarians should try to employ these techniques, as it would improve the experience for the pet and decrease the change of getting hurt by a fearful animal.

NURSES

DELVING DEEPER INTO BITE WOUNDS

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Bite wounds present an emergency situation in the veterinary patient. These patients require intensive management of both the wound and the patient attached to the wound. Bite wounds can lead to systemic shock and death rapidly if not monitored carefully. The old use of adherent dressings in non-selective debridement of necrotic wounds is not acceptable anymore. The use of moisture retentive dressings, which promote a warm, moist wound environment, are currently the best treatment for wounds. Staged selective surgical debridement is then done on a daily basis to remove necrotic tissue. Wounds should only be sutured once a healthy bed of granulation tissue has formed. However this needs to be taken with a degree of common sense. Each wound should be treated on its own merits. There is no checklist to manage every type of wound. Thoracic and abdominal wounds present the possibility of severe underlying life threatening conditions that need to be quantified as soon as possible. Bite wounds to the limbs should be radiographed to check for underlying fractures.
There are vast types of suture materials available in veterinary medicine and the choice of which one to select can be a daunting task. The cost of having every type of suture material and needle is non-viable and unnecessary. By carefully selecting the best possible suture material, needle for your practice one can practice high quality veterinary medicine at a nominal cost. Certain suture materials are superior to others but there is no perfect suture material. Some materials cannot be used in certain situations and this needs to be common knowledge for the theatre nurse. The hope of this paper is to provide you with a reference to base your decision of which suture material to choose where.

Bite wounds in dogs and cats are seen very commonly in the veterinary practice and the veterinary nurse plays a vital role in the continuous treatment and care of these patients.

This presentation will focus on the following topics:
- Types of wounds
- Stages of wound healing
- Initial assessment of the patient on presentation
- Nursing a patient with severe bite wounds
- Wound dressings
- Bandages
- Management of active and passive drains

The aim of my presentation is to provide guidelines with regards to the management of bite wounds to assist the veterinary nurse when having to initiate an individual treatment plan for a patient depending on the severity and extent of the wounds.

Juvenile and sub-adult patients for an integral part of ones practice with (hopefully) a steady stream of new puppies and kittens coming through the doors. Whilst one hopes that many of these visits are “routine” and for preventative or prophylactic health care, anyone who has ever owned a puppy or kitten (or anyone who has a baby or toddler) will know that things are never that simple! Accidents happen and curious minds prevail as learning about life ensues. This together with the unwanted occurrence of infectious conditions which abound mean that one will need to deal with these critters in a much more intensive manner at some stage.

Radiology still in this modern day, forms an crucial part of the “in-house” armery of diagnostic tests available to the veterinary practice. Although the science behind radiography has advanced dramatically in the last 2 decades, allowing for increased throughput and ultimately a better image. The principles of radiography and radiology remain largely unchanged with one of the crucial aspects been that an image of diagnostic quality must be obtained in order to allow for a proper diagnosis.

Even though puppies and kittens are just small dogs and cats, due to physiological and anatomical differences that are present between juvenile and adult patients, certain factors should be borne in mind when radiographing a juvenile patient and interpreting the images. The aim of any diagnostic procedure or test, including radiographic examinations, is to maximise the benefit and minimise the risks. As such a procedure should be tailored to each and every patient. And this is where a nurse can form a vital link in problem-orientated patient care. After discussion with a clinician, and understanding the desired outcome for a radiographic procedure, together with his/her clinical experience, they can often single handedly result in an optimal imaging procedure.

The various organ systems will be assessed in this presentation looking at juvenile conditions and idiosyncracies whilst giving some useful tips and tricks in order to maximise benefit and minimise risk to the juvenile patient in the radiology suite.
FEEDING FOR RECOVERY & LONG TERM HEALTH
Guy Fyvie BVSc
Hill’s Pet Nutrition

Nutrition is a critical part of helping our patients recover as quickly and completely as possible. Not only is it important to help overcome the condition, but lack of nutrition in hospital is one of the main causes of infection, slow recovery and mortality.

We will cover not only the nutrients of importance, but also the methods and procedures needed to ensure success.

HEADING HOME, THE BEST WAY TO RECOVERY
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Client non-compliance is one of the most frustrating aspects of any veterinary practice. The veterinary nurse plays a vital role in the link between the veterinarian and the owner/client. By getting the veterinary nurse to talking to the owners, educating them about their pets disease process and understanding their personal circumstances and adapting treatments/instructions to better suit them, compliance will be improved immensely.

PUBLIC-PRIVATE PARTNERSHIP
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For ages, governments have used a mix of public and private endeavours to deliver services and to manage projects. These cooperative, long or short term arrangements between the public sector and one or more partners in the private sector has led in majority of cases to better management of resources leading to benefits to both parties and to stakeholders. In these arrangements, the risks are equally shared, therefore instilling a sense of improved risk management. As a result of better risk management, the concepts and plans of the projects are better conceived and implementation is more efficient, projects are completed on time, quality assurance is better and there is improved buy-in from the relevant stakeholders.

In the veterinary sector, the implementation of policies is characterised by resource constraints. In addition, profits of the animal and products industries or just their survival can be severely impacted by introduction of new policies and projects. This makes it necessary to share the risks between governments and the stakeholders. The high impact policies may on the other hand lead to greater benefits in the form of improved disease control efforts resulting from improved understanding and buy-in from the stakeholders resulting in setting of common goals, improved health assurances and improved market access of the products produced.

A brief evaluation of the current situation in the veterinary arena in South Africa was conducted by use of a questionnaire and proposals of areas of possible government, private sector and stakeholder collaboration are made for improved delivery of Veterinary Services.

A FRAMEWORK FOR TARGETED ALLOCATION OF RESOURCES FOR LIVESTOCK DISEASE SURVEILLANCE IN SELECTED PACIFIC ISLAND COUNTRIES
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The livestock sector contributes significantly to the food security and economy of the Pacific Island region but the extent of its 25,000 islands’ borders and the vastness of its surface area represent a real biosecurity challenge for avoiding the incursions of transboundary animal diseases. Within this context, we conducted a structured approach to identify the diseases of priority in the region and determine how they could be introduced and spread within these islands.

The approach integrated social network and market chain analysis with a risk assessment on a regional level. This appears to be the first study that has applied this approach to a region rather than an individual country. The risk assessment first looked at farmer practices and
the movements of pigs and poultry within four selected neighbouring countries using a questionnaire survey and social network analysis to predict how livestock diseases could potentially spread within the region. A participatory pig and poultry market chain analysis was then conducted and combined with a risk pathway analysis to identify the highest risk areas (risk hotspots) and risky practices and behaviours (risk factors) for the introduction and/or spread of foot and mouth and highly pathogenic avian influenza, which were identified as priority regional diseases. The involvement of animal health officials in the market chain analysis with risk pathway assessments formed the risk communication component of the model framework and was a practical way of communicating risk to animal health officials and improving biosecurity. The participatory approach helped officials better understand the trading regulations in place in their country and better evaluate their role as part of the control system.

The logical process developed under this study provides a practical framework that local authorities from the Pacific Island Countries and Territories (PICTs) can follow in the future for a more integrated and better harmonized animal disease risk management. The analysis of our results led to the identification of some limitations and gaps among the PICTs animal health systems and livestock sector that would need to be addressed for an optimal implementation of surveillance programmes. Results provide insights for more rational allocations of available resources and better targeted surveillance programmes and provide a strategy that will underpin food security and enhance biosecurity on a regional basis. The approach could be potentially applied to certain regions of Africa.

**CLINICAL PRESENTATION OF CASES IN VETERINARY BEHAVIOUR PRACTICES IN SOUTH AFRICA AND ASSOCIATION WITH BREED**

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Data obtained from four veterinary behaviour practices in South Africa was analysed to determine the prevalence of different clinical presentations as well as the association between presenting signs, and breed and gender. A group of dogs and cats presented to veterinary behaviour practitioners in 4 urban practices (the referred group, n = 628, consisting of 549 dogs and 79 cats) was compared to a group of dogs and cats obtained from the records of an urban dog and cat boarding facility, (the kennel population, n = 6906, 5037 dogs and 1869 cats), assumed to be healthy animals. The most common behaviour problem presented at veterinary behaviour practices was inter-dog aggression involving dogs in the same household (25% of presenting complaints in dogs). In cats, the most common problem was inappropriate elimination (house-soiling) with 35% of cat cases presenting with this complaint.

**AN EVALUATION OF SYNDROMIC DATA FROM RURAL POULTRY FARMERS AS A VIABLE DISEASE REPORTING TOOL USING EASTERN ZAMBIA AS A MODEL**

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Rural Poultry production possesses a great potential for significant contribution to the attainment of food security in developing countries of the world. Unfortunately, successful production of rural poultry in developing countries like Zambia is hindered by high poultry mortalities which are mostly due to infectious poultry diseases. Furthermore, inadequate financial and human resources make it very difficult for veterinary services to carry out routine active poultry disease surveillance in these regions. As a result, most outbreaks lead to very high mortalities because of delayed response.

Syndromic surveillance is a well described tool used in developed countries for alerting authorities to disease incursions however, little work has been done to evaluate whether this could be a viable tool in countries where disease reporting infrastructure and resources is poor. Consequently, a syndrome based questionnaire study of 459 rural poultry farmers in Eastern Zambia was designed to gather data on previous encounters farmers had had with poultry diseases, as well as control measures they use to mitigate them. The survey took place between October 2014 and January 2015 and its main objective was to determine the viability of this data as an effective means of alerting authorities to disease incursion within rural farming enterprises.

Descriptive and logistic regression analysis were conducted using SPSS version 24, while poultry morbidity and mortality was simulated from the data provided using the Palisade software package @Risk version 7.0. Data provided by farmers, found the overall crude morbidity and mortality in rural poultry for eastern Zambia was 31% and 30% respectively.

Four significantly associated risk factors for poultry morbidity in this region were identified. The study also tentatively identified six poultry diseases from the thirty-four disease syndromes provided by farmers. Furthermore, thirty-six remedies and strategies farmers use to treat and control these diseases were revealed. From these remedies and strategies, only fourteen are conventionally accepted as remedies and disease control measures for poultry diseases.

When compared with the previous method of disease reporting involving morbidity reports submitted by field veterinary technicians, syndromic data appears to be better in identifying disease risks both qualitatively and quantitatively. Thus, it demonstrates that syndromic data obtained directly from farmers could be more beneficial for analysing poultry diseases and their significantly associated risk factors. It therefore, justifies the use of syndromic surveillance, as a cost effective form of targeted surveillance for resource constrained countries like Zambia. Lastly, this study also reveals the use of unconventional remedies for poultry diseases, which may indicate a gap in knowledge of poultry disease control among rural poultry farmers in this region.
A LIVESTOCK FIELD CENSUS CARRIED OUT IN GAUTENG PROVINCE – LESSONS LEARNT, GAUTENG, SOUTH AFRICA, 2016

Geertsma P.J., Govindasamy K.

South Africa used to have a fairly reliable system of collection of animal numbers on our farms which depended on the spatial allocation of a stock inspector and or state veterinarian to a number of farms or to a district. The possible over-emphasis of the regulatory role of the provincial veterinary services may have contributed to emphasis of certain disease control activities to the detriment of effective collection of livestock numbers.

INVESTIGATION OF SEASONAL PREVALENCE OF LOW PATHOGENIC AVIAN INFLUENZA IN A HETEROGENEOUS WILD WATERFOWL POPULATION IN PRETORIA

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Avian Influenza Virus (AIV) is a member of the the Orthomyxoviridae group and contains an segmented genome of single-stranded negative sense RNA. It is a highly diverse virus which consists of 16 haemagglutinin (H) and 9 neuraminidase (N) subtypes. The H and N glycoproteins occur in any combination in the viral envelope to form the serotype. AIV has been detected in more than 100 bird species from 26 different families, although waterfowl species are considered to be the reservoir of the low pathogenic form of the virus (LPAI), spreading the virus within and between populations by excretion into the shared environment. These birds are highly mobile, can live under variable densities with multiple exposures to pathogens and have a well-developed immunity to LPAI.

The Irene Country Club in Pretoria houses a variety of free-living wild waterfowl that belong to the Anseriformes species such as the Egyptian goose, yellow billed duck, red knobbed coot, African sacred ibis and hadeda ibis. These birds would have contact with birds at other sites from other geographic regions across Southern Africa. We investigated the prevalence of AIV in wild ducks at the Irene sampling site over a period of 12 months. A total of 2870 faecal samples were collected and screened for AIV-specific genomic RNA (matrix protein gene), using real time reverse transcripse PCR (rRT-PCR). Positive samples were inoculated into embryonated chicken eggs for virus isolation. A total of 15 (0.5%) samples tested positive for AIV, and one virus was isolated. The viral isolate was identified as an H3N6 strain using Illumina MiSeq sequencing. The highest frequency of AIV was detected in the months of February and March (late summer), with other peaks in July (winter) and November (early summer).

SEASONAL OCCURRENCE OF THEILERIA PARVA INFECTIONS AND CONTROL PRACTICES AMONGST PASTORALIST COMMUNITIES IN MONDULI DISTRICT, NORTHERN TANZANIA

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Theileria parva causes an economically devastating tick borne disease which affects cattle in Central, Eastern and Southern Africa. Determination of seasonal infection rates for T. parva in wet and dry season is crucial for epidemiological understanding and for strengthening management practices. However, this information is lacking in the study area. The principle objective of this study was to estimate the prevalence of T. parva infection in contrasting seasons (wet and dry season) and identify risk factors associated with T. parva infections amongst pastoralist cattle of Monduli district, Tanzania.

ZOOONOTIC EPIDEMIOLOGY OF BOVINE BRUCELLOSIS IN GAUTENG, SOUTH AFRICA, 2016

Govindasamy K., Harris B.N., Russouw J., Geertsma P.J., Thompson, P. & Abernethy D.A.

Bovine brucellosis is a bacterial zoonotic disease of cattle that is of international public health and economic importance. Gauteng province, in South Africa, has had an increasing trend of bovine brucellosis herd seroprevalence, from 17% in 2009 to 21% in 2013 despite it being targeted for eradication by legislature. The zoonotic impact of brucellosis is unknown in SA, negatively impacting the societal drive to control brucellosis. Evidence of integrated temporal and spatial epidemiological data of interacting cattle and human populations as well as environmental/management risk factors for endemic brucellosis is necessary to base and redefine governmental strategy and policy, for the effective control and management of brucellosis in cattle and people in Gauteng and South Africa.
The Vaccination of domestic dogs against rabies is a regular and highly important activity of the local veterinary services throughout the RSA, especially in areas which experience a high incidence of rabies cases in animals. A vaccination coverage of at least 70% (temporary coverage) of the total resident dog population is targeted to be achieved during such vaccination efforts / campaigns, so as to facilitate the maintenance of a continuous level of protective immunity (valid vaccination coverage) of at least 35-40%, which is regarded as sufficient to prevent the persistence of rabies in a population, due to the achieved herd immunity.

Differences between different human settlement types, land usage and infrastructure results in associated differences regarding the applied husbandry practices and population demographics of the respective local dog populations. Measurable units are a basic requirement for the planning, implementation, monitoring and review of animal disease control programmes. This is especially true for spatially defined animal populations and their respective proportions, which are targeted by animal disease interventions with preventative character, like rabies vaccinations.

Whereas such data is often readily available or comparatively easy to obtain in the livestock farming settings, adequate and current information on the sizes of domestic dog populations, as well as their demographic composition, is mostly lacking, and also prone to local variations and changes over time. The logistical and strategic planning, as well as effective practical implementation of house-to-house dog rabies vaccinations also does necessitate the presence of clearly defined and easily distinguishable spatial entities.

To address the multiple experienced challenges with rabies control, an approach is now being used by the local veterinary services in the Bushbuckridge municipality in the Northeast of Mpumalanga Province, South Africa, which includes detailed geographical identification of vaccination areas, concomitant dog census and rabies vaccinations, as well as the integration of these information layers, for the efficient planning, implementation, real-time monitoring and analysis of dog rabies vaccination campaigns.

The aim of this study was to form part of a larger project in the quest to learn more about the prevalence of the disease in South Africa. Thirty two percent of the animals (n=128) in the study was sampled at both sterilisation campaigns and welfare kennels. The proportion of samples obtained from veterinary practices contributed 6.75% (n=27), and represents the lower risk socio economic group that can afford veterinary health care. Sixty (15%) of the dogs was sampled from 5 different breeders. Dogs from private residences in both informal areas and formal suburbs was sampled during routine Rabies vaccination campaigns held in the study area. The majority of samples in the study was taken at private residences and constituted 172 (43%) of the total number of samples. The samples taken at private residences was divided into urban, peri-urban, informal and farm categories. Thirteen (3.25%) of the dogs sampled were working dogs from the SAPS K9 unit and Helderstroom prison. Two samples was taken from each participating dog. One serum sample was taken for serologic screening by 2ME-TAT (2-Mercaptoethanol Tube agglutination Test) and then a whole blood sample was stored for confirmatory culture upon reaction of serology tests. All participants were required to complete a survey questionnaire. Owners also needed to sign a consent form where they were informed about and agreed to the study. Six of the initial 400 samples were haemolysed and could not be interpreted. Eight of the 394 remaining samples tested positive on 2 ME-TAT, resulting in a prevalence of 2.03% on the serological assay, the prevalence for the different groups were as follows, animal welfares 2, 42% (3 out of 124), Private veterinary practices 3, 70% (1 out of 27) and private residences 2, 33% (4 out of 172). Two of the 5 groups had no positive samples, these were breeders with 0 out of 59 dogs and working dogs with 0 out of 12 dogs. The difference between the three groups was not significant (p>0.05). Unfortunately none of the samples positive on serology could be confirmed by bacterial culture.

**VACCINATION CAMPAIGNS IN THE BUSHBUCKRIDGE MUNICIPALITY, MPUMALANGA PROVINCE, SOUTH AFRICA**

**Bjorn Reininghaus**

Mpumalanga Veterinary Services; Department of Agriculture, Rural Development, Land and Environmental Affairs

The Vaccination of domestic dogs against rabies is a regular and highly important activity of the local veterinary services throughout the RSA, especially in areas which experience a high incidence of rabies cases in animals. A vaccination coverage of at least 70% (temporary coverage) of the total resident dog population is targeted to be achieved during such vaccination efforts / campaigns, so as to facilitate the maintenance of a continuous level of protective immunity (valid vaccination coverage) of at least 35-40%, which is regarded as sufficient to prevent the persistence of rabies in a population, due to the achieved herd immunity.

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**PREVALENCE STUDY OF BRUCELLA CANIS IN PARTS OF THE THEEWATERSKLOOF AND OVERSTRAND MUNICIPALITIES OF THE WESTERN CAPE PROVINCE IN SOUTH AFRICA.**

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*Brucella canis* is a zoonosis of dogs and other canids caused by a gram-negative proteobacterium *B.canis* in the family Brucellacea. Brucellosis in all species is a controlled disease in South-Africa. Many studies around the world have been conducted to determine the prevalence of *B.canis*, but no studies was ever conducted in South-Africa. *Brucella canis* is not considered to be endemic in South-Africa, so the sporadic occurrence of the disease in dogs in the Western and Eastern Cape Provinces of South-Africa prompted a study to determine the prevalence within South-Africa.

The aim of this study was to form part of a larger project in the quest to learn more about the prevalence of the disease in South Africa. Thirty two percent of the animals (n=128) in the study was sampled at both sterilisation campaigns and welfare kennels. The proportion of samples obtained from veterinary practices contributed 6.75% (n=27), and represents the lower risk socio economic group that can afford veterinary health care. Sixty (15%) of the dogs was sampled from 5 different breeders. Dogs from private residences in both informal areas and formal suburbs was sampled during routine Rabies vaccination campaigns held in the study area. The majority of samples in the study was taken at private residences and constituted 172 (43%) of the total number of samples. The samples taken at private residences was divided into urban, peri-urban, informal and farm categories. Thirteen (3.25%) of the dogs sampled were working dogs from the SAPS K9 unit and Helderstroom prison. Two samples was taken from each participating dog. One serum sample was taken for serologic screening by 2ME-TAT (2-Mercaptoethanol Tube agglutination Test) and then a whole blood sample was stored for confirmatory culture upon reaction of serology tests. All participants were required to complete a survey questionnaire. Owners also needed to sign a consent form where they were informed about and agreed to the study. Six of the initial 400 samples were haemolysed and could not be interpreted. Eight of the 394 remaining samples tested positive on 2 ME-TAT, resulting in a prevalence of 2.03% on the serological assay, the prevalence for the different groups were as follows, animal welfares 2, 42% (3 out of 124), Private veterinary practices 3, 70% (1 out of 27) and private residences 2, 33% (4 out of 172). Two of the 5 groups had no positive samples, these were breeders with 0 out of 59 dogs and working dogs with 0 out of 12 dogs. The difference between the three groups was not significant (p>0.05). Unfortunately none of the samples positive on serology could be confirmed by bacterial culture.
OVERVIEW OF THE PERCEIVED RISK OF TRANSBOUNDARY PIG DISEASES IN SOUTH AFRICA

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Pig production is one of the most important animal agricultural activities in South Africa, and plays a definite role in providing food security for certain population groups in the country. As with all animal production systems, it is subject to the risk of outbreak of transboundary diseases. In the present overview, evaluations of the perceived risk of selected transboundary animal diseases of pigs, as collated from the willing participants from the provincial veterinary services of South Africa, are presented. A scenario tree revealed that infected but undetected pigs were the greatest perceived threat. The provincial veterinary services, according to participants in the study, face certain difficulties, including the reporting of disease and the flow of disease information amongst farmers. Perceived strengths in surveillance and disease monitoring include the swiftness of sample despatch to the national testing laboratory, as well as the ease of flow of information between the provincial and national agricultural authorities. The four factors were identified that were perceived to most influence animal health-service delivery: transport, access, livestock policy and resources. African swine fever was perceived to be the most important pig disease in South Africa. Because the decentralisation of veterinary services in South Africa was identified as a potential weakness, it is recommended that national and provincial veterinary services need to work together and interdependently to achieve centrally controlled surveillance systems. Regionally-coordinated surveillance activities for certain transboundary diseases were identified as needing priority for certain population groups in the country. As with all animal production systems, it is subject to the risk of outbreak of transboundary diseases. In the present overview, evaluations of the perceived risk of selected transboundary animal diseases of pigs, as collated from the willing participants from the provincial veterinary services of South Africa, are presented. A scenario tree revealed that infected but undetected pigs were the greatest perceived threat. The provincial veterinary services, according to participants in the study, face certain difficulties, including the reporting of disease and the flow of disease information amongst farmers. Perceived strengths in surveillance and disease monitoring include the swiftness of sample despatch to the national testing laboratory, as well as the ease of flow of information between the provincial and national agricultural authorities. The four factors were identified that were perceived to most influence animal health-service delivery: transport, access, livestock policy and resources. African swine fever was perceived to be the most important pig disease in South Africa. Because the decentralisation of veterinary services in South Africa was identified as a potential weakness, it is recommended that national and provincial veterinary services need to work together and interdependently to achieve centrally controlled surveillance systems. Regionally-coordinated surveillance activities for certain transboundary diseases were identified as needing priority for the southern African region. It is proposed that an emergency preparedness document be made available and regularly revised according to the potential risks identified on a continuous basis for South Africa.

SEROPREVALENCE AND RISK FACTORS FOR RIFT VALLEY FEVER IN DOMESTIC Ruminants IN THE FREE STATE AND northern CAPE, 2015-2016

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This study estimated the prevalence of antibodies against Rift Valley fever (RVF) virus in domestic ruminants in an area affected by the South African 2010-2011 outbreaks and identified factors associated with seropositivity.

A cross-sectional study was conducted during 2015-2016 within a ~40,000 km² region between Bloemfontein and Kimberley. Farms were selected using random geographic points with probability proportional to density of livestock-owning households; livestock (cattle, sheep and goats) were sampled on the closest farm. A questionnaire was implemented to collect information concerning animal, management, and environmental factors. Sera were screened for RVFV antibodies using IgG ELISA. Data were analyzed using multilevel logistic regression.

On 232 farms, 3,001 animals (956 cattle, 1,525 sheep and 520 goats) were sampled. Estimated RVF seroprevalence, adjusted for clustering and sampling weights, was 30.5% (95%CI: 24.6-37.0%) in cattle, 14.2% (95%CI: 9.7-20.3%) in sheep and 8.8% (95%CI: 4.1-18.1%) in goats. Compared to animals <2y of age, seroprevalence was higher in animals 2-4y (OR=2.1, P=0.017) and >4y old (OR=19.7, P<0.001). Seropositivity was also higher on private vs. communal land (OR=6.3, P=0.009), on farms that purchased animals in the previous year (OR=1.6, P=0.017), and in animals not kraaled at night (OR=2.6, P<0.001). Seropositivity was positively associated with the presence of perennial rivers (OR=2.2, P=0.004) and seasonal pans (OR=2.0, P=0.012) on the farm.

The low seroprevalence likely indicates a largely susceptible population. Seropositivity in animals <4y old, born after the most recent outbreak, raises the possibility that viral circulation occurred during the inter-epidemic period; this requires further investigation.

PROJECTED NUMBERS OF HISTORICAL HUMAN RIFT VALLEY FEVER AND CRIMEAN-Congo HAEMORRHAGIC FEVER CASES IN SOUTH AFRICA

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Rift Valley fever (RVF) and Crimean-Congo haemorrhagic fever (CCHF) are important vector-borne, zoonotic viruses. In humans, RVF is typically mild with low mortality (1%), while CCHF causes severe haemorrhagic illness with a high case fatality (25%). RVF causes
significant livestock morbidity and mortality, while CCHF is inapparent despite high seropositivity. During the 2010-2011 RVF epidemic in South Africa, there were approximately 300 reported laboratory-confirmed cases. Since 1981, 203 cases of CCHF were reported. However, the full public health burden of these diseases is poorly understood.

IgG seroprevalence against the viruses was assessed amongst livestock-owning households (LOHH) and veterinarians during a 4-month cross-sectional study in 2015-2016. The study area encompasses ~40,000 km² between Bloemfontein, Free State and Mokala Game Reserve, Northern Cape and includes known RVF epicentres and is within the range of the CCHFV *Hyalomma* tick vector.

Amongst 711 participants from 212 farms, RVFV seroprevalence was 9.6% (CI95%:6.9-12.2). At least one seropositive individual was detected in 25% of LOHH. Of 134 veterinarians, 8.2% (CI95%:6.2-10.2%) were seropositive. Given the participants' age distribution (mean 39y, 60% <40y), most were likely exposed during the 2010-2011 RVF epidemic than before in 1974-1975. Using the seroprevalence and estimated number of agricultural workers (2011 census), we project that the number of past RVFV infections in the study area is 979–2,960. The seroprevalence of CCHFV was 3.2% (CI95%:1.6-4.7%) and the projected number of actual infections is 227–1,140.

These estimates will improve the quantification of the public health burden of RVF and CCHF in South Africa.
within these unique regions capable of distinguishing between the ALV / reference virus and field isolates of each individual serotype. Nine unique sets of primers were designed, each amplifying a unique serotype. The amplicons ranged from 222 to 458bp. The serotype of a virus was assigned based on the presence of an amplicon in PCR using the corresponding set of primers. In addition, the assay could be used to distinguish between natural and vaccine-associated infection based on the sequence of the amplicons. Six of the serotype specific amplicons had between 7 and 14 SNPs, discriminating between ALV and field isolates. An additional set of primers was designed to differentiate between field viruses and the ALV of serotype 7, since the latter contains a 670bp deletion in segment-2. The performance of the serotyping assay was assessed using 100 diagnostic samples not used during the design thereof. The PCR can be used as a fast, cost effective method to assign field viruses to a specific serotype. Since sequence analysis of the PCR product discriminate between ALV and field isolates, the assay could potentially be used to identify vaccine-associated infections of AHS.

SALIVARY GLAND TRANSCRIPTOME OF RHIPICEPHALUS (BOOPHILUS) MICROPLUS

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The cattle tick, Rhipicephalus (Boophilus) microplus is of veterinary and medical importance globally. Control of ticks is important and needed to prevent livestock diseases caused by tick-transmitted pathogens. Tick control measures have relied on the use of acaricides, however, this has several disadvantages such as development of acaricide-resistant ticks, environmental pollution and milk and meat contamination. Therefore, there is a need for alternative methods, and vaccines directed against tick feeding are considered as the best option in an integrated pest control strategy. This study aimed at characterizing and analysing the salivary gland transcriptome and proteome of R. (B.) microplus. Female ticks were collected at five different feeding stages. cDNA libraries were prepared from the RNA of female ticks from all feeding stages. The libraries were then sequenced by Illumina MiSeq platform. Proteomics experiments were also performed, where the salivary gland proteins were subjected to 1D SDS-PAGE; tryptic in-gel digestion and analyzed on the MS/MS mass spectrometry analysis. The transcriptome and proteome data were analyzed by CLC Genomics Workbench; Trinity and Mascot and X-Tandem databases, respectively. The results obtained herein indicated the presence of major secretory protein families such as Kunitz, lipocalins, serpins, cement proteins and metalloproteases, while the majority of transcripts coded for housekeeping genes.

AFRICAN SWINE FEVER VIRUS MAINTENANCE AND TRANSMISSION DYNAMICS IN THE SYLVATIC ORNITHODOROS VECTOR

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African swine fever (ASF) is a highly contagious and fatal haemorrhagic viral disease of domestic pigs caused by a large, DNA arbovirus with a genome ranging from 170 to 190 kb in length, the African swine fever virus (ASFV). There is no treatment or vaccine available to combat the disease, and sporadic outbreaks of ASF have been reported from 1928 until present from within the Republic of South Africa (RSA). Control of the disease in the RSA relies on strict biosecurity measures and the establishment of a control zone that limits movement of pigs and pig products from high-risk areas. The sylvatic cycle, that involves warthogs and Ornithodoros soft ticks, plays a crucial role in the maintenance and distribution of ASFV and clarification of key epidemiological factors are needed in order to enhance understanding and to assist with the formulation of more effective disease control strategies. A comprehensive survey to confirm the presence of Ornithodoros ticks in game parks within the control zone in SA as well as those in neighbouring Swaziland was done to determine the presence of the soft ticks and their ASFV infection status. Characterisation of the 16S rRNA gene sequences of Ornithodoros ticks from each of the sampling sites revealed high levels of diversity and confirmed the presence of at least three geographically distinct lineages within SA. In an attempt to better understand how ASFV adapts and changes when it cycles between the invertebrate and vertebrate host, a transmission experiment in which naturally infected Ornithodoros ticks were used to establish an infection in domestic pigs was conducted. This study gives insight into the role that the sylvatic Ornithodoros vector plays in African swine fever virus maintenance and transmission dynamics in South Africa.

AFRICAN SWINE FEVER OUTBREAK IN SOUTH AFRICA, 2016

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Domestic pigs infected with African swine fever (ASF), are a source of the disease and spreads the virus to other pigs during active outbreaks. During the acute phase of the disease, clinical symptoms like nasal discharge, diarrhoea, and reddening of the skin may occur. Infected pigs usually succumb within a week of the development of clinical symptoms. In South Africa, as in most other countries, ASF is a controlled disease and therefore the state veterinary authorities must be informed. In South Africa, ASF is usually restricted to four provinces in the north-eastern parts of the country. The ASF control zone, demarcated in accordance with the Animal Disease Act 35 of
Listeriosis is an important foodborne disease worldwide. There is a scarcity of comprehensive recent information regarding the prevalence of Listeria monocytogenes in meat and meat products in South Africa, primarily due to lack of targeted monitoring of foodborne pathogens. The aim of this study was to determine the presence of L. monocytogenes in meat samples collected across nine provinces of South Africa in a cross-sectional study. 2,013 various types of meat samples were collected from a random selection of abattoirs, meat processing plants and retail outlets between 2014 to 2016. The isolation and identification of L. monocytogenes was performed using standard microbiological techniques and Real Time-PCR. The prevalence of L. monocytogenes was 56.4%, 38.8% and 4.8% for retail outlet samples, the frequency of isolation of L. monocytogenes was for 59.0% for processed meat, 25.5% for raw meat and 14.4% for Ready-To-Eat (RTE) meat products. For meat samples collected from meat processing plant, the highest frequency of isolation of L. monocytogenes was in processed meat (68.0%) and the lowest in RTE (5%). Geographical results revealed that samples from Gauteng (34%), North West (14.4%) and Mpumalanga (14.4%) provinces had the highest presence of L. monocytogenes, while Eastern Cape had the lowest presence of 2.1%. Data generated from the study indicate the extent of meat contamination by L. monocytogenes in South Africa and, more importantly, the risk of listeriosis to consumers.
of contaminated, improperly cooked meat sold at various outlets in South Africa.

VACCINATION OF ON-FARM CATTLE AGAINST HEARTWATER USING AN ATTENUATED TISSUE CULTURE VACCINE

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Heartwater (Cowdriosis) is an infectious, non-contagious, tick-borne disease of both domestic and wild ruminants caused by a rickettsia, previously known as Cowdria ruminantium but has recently been reclassified as Ehrlichia ruminantium. There is approximately 150 million animals that are at risk in the sub-Saharan Africa, with South Africa contributing 8.6 million. The disease affects mainly cattle, sheep, goats and some wild ruminants. The vectors responsible for the transmission of the agent belong to the genus Amblyomma, the most important two vectors being Amblyomma hebraeum and A. variegatum. Currently, the control methods of heartwater in the country is through acaricide application and vaccination. Both these control mechanisms are unsatisfactory, expensive and requires excessive effort. The only commercially available method of immunization is "infection and treatment". Even though this procedure has been the only commercially available "vaccine" for many years, the spectrum of protection of the Ball 3 blood vaccine strain against other E. ruminantium strain is limited. Problems encountered with this procedure; blood should be kept at a temperature below freezing until before use and this is a serious challenge for rural areas, it requires intravenous administration, temperature monitoring, consequently trained staff is needed and the vaccine does not offer cross protection against many South African field strains. Therefore, there is a need for a vaccine that will offer a wider protection to heterologous challenge, replace the intravenous with intramuscular administration.

THREE TECHNIQUES CONFIRMING SEPARATE SPECIES STATUS WITHIN THE CULICOIDES BRUCEI SPECIES GROUP

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Worldwide Culicoides species play a role in disease transmission to man, livestock and wildlife. Complicating Culicoides identification is not just the number of Culicoides species, but also the number of species groups that must be sorted. Species within these groups are closely related and often difficult to separate morphologically. Not all Culicoides species are competent vectors of disease, as only about 6% of the 1 300 species currently described have been shown to transmit disease. With Culicoides species utilizing a wide array of breeding media, misidentifications could hamper control efforts if the wrong species and breeding sites are targeted. Genetic analyses can and have been used to confirm that these are separate species. Morphometric analyses have also been used to show group structure among species using wing venation. This technique comprises of taking a photograph of the wing, plotting landmarks and these data are then analysed and plotted. In this study, morphology, morphometric and genetic analyses were used on the Brucei group of species in South Africa to confirm the validity of these techniques and to detect species.

DIAGNOSTIC TESTING AT PVVD, ARC-OVI

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Diagnostics form an integral part of disease surveillance and control. At the Agricultural Research Council – Onderstepoort Veterinary Institute (ARC-OVI) diagnostic tests done in the Parasites, Vectors and Vector-borne Diseases programme (PVVD) include tests of economically important parasitic diseases. Tests done include theileriosis, babesiosis, Leishmania, and Trypanosomiasis. These diseases affect a wide range of animals, cause severe losses in animals and revenue. With international trade and animal movement ever increasing, the risk of importation of disease exists. Specific tests require certain samples. Samples needed include serum, blood smears and EDTA collected blood. Most of the tests done at the laboratories at PVVD that test for babesiosis, Theileria and Leishmania is DAFF approved and SANAS accredited.
EVALUATION OF AFRICAN HORSE SICKNESS CASES TO CULICOIDES NUMBERS AND CLIMATIC VARIABLES

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African horse sickness (AHS) is a devastating vector-borne viral disease affecting all equines. The World Organisation for Animal Health (OIE) lists AHS as a notifiable disease and as such, it is a controlled disease in South Africa that must by law be reported to the state veterinary services. Cases are reported annually across South Africa with sporadic cycles of outbreaks being recorded. African horse sickness information i.e. reported outbreaks, cases and deaths was extracted from the website Department of Agriculture, Forestry and Fisheries (DAFF). These statistics were compared to the annual average Culicoides numbers collected per province and graphically presented. The average number of cases, average number of Culicoides and various climatic variables per month in Gauteng were also compared. Graphs were generated. The Culicoides numbers as determined with light traps increased during spring and summer, peak during March, and decreased steadily from April onwards until the next spring when it increased again. African horse sickness cases reflected the same general pattern as the Culicoides numbers. The best correlation was found between high numbers of midges to cases of AHS and rainfall.

WEDNESDAY 26 JULY 2017

CRITICAL CARE

RECOGNIZING AND UNDERSTANDING SHOCK
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Shock is a complex clinical condition that results when cellular energy production is inadequate to meet metabolic requirements. There are numerous potential causes for shock and these can be broadly classified: hypovolemic, distributive, cardiogenic, obstructive, and metabolic. Clinical signs of shock are mediated by the sympathetic nervous system and vary with the severity of the patient’s condition. For all but cardiogenic shock, a fluid bolus is the first step in treating shock. Supportive and symptomatic care and monitoring are also indicated. The goal of shock therapy is to restore effective circulating volume as evidenced by normalization of patient vital signs.

HEATSTROKE
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Heatstroke occurs when body heat generated by endogenous or exogenous mechanisms exceeds the body’s cooling capacity. Heatstroke leads to multi-organ involvement with cardiovascular, gastrointestinal, renal, coagulation and neurologic systems predominating. Treatment includes rapid cooling of the body temperature in conjunction with fluid resuscitation and supportive and symptomatic care. Prognosis is improved for patients brought to normal body temperature as soon as possible. Poorer prognosis has been associated with a delayed treatment, advanced neurologic signs or neurologic deterioration, hypothermia on presentation, persistent hypotension, persistent oliguria or azotemia despite fluid loading, elevated bilirubin, persistent hypoglycaemia, hypoproteinemia, increased numbers of nucleated red blood cells, and disseminated intravascular coagulation.

SEPSIS: THE SURVIVING SEPSIS CAMPAIGN AND RELEVANCE TO VETERINARY PATIENTS
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Sepsis is a systemic inflammatory response to infection. Sepsis can occur subsequent to severe infection with any type of organism at sites throughout the body. Early sepsis is characterized clinically by the hyperdynamic phase in dogs: fever, tachycardia, vasodilation, bounding pulses, and red mucous membranes. Cats do not display a hyperdynamic phase, instead manifesting pallor, hypotension, abdominal pain and often a relative bradycardia. The Human Surviving Sepsis Campaign Early and aggressive resuscitation is accomplished with fluids and pressors/inotropes, as needed, and should be completed as soon as possible after sepsis identification. Early antibiotic administration has been associated with better patient outcomes for people with septic shock. Use of corticosteroids is indicated only for treating septic patients that are still hypotensive despite full volume resuscitation and pressor/inotrope therapy. Additional therapy includes source control, and diligent nursing care and monitoring.
RECOGNIZING RESPIRATORY PATTERNS IN THE DYSPNOEIC PATIENT: KEYS TO NARROWING THE DIFFERENTIAL LIST

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Respiratory distress is a common presenting problem for emergency patients and can be an acquired problem in hospitalized patients. These patients present a diagnostic and therapeutic challenge as they are fragile and may not tolerate extensive or invasive diagnostics. As such, familiarity with respiratory patterns and physical examination findings will help facilitate diagnosis. Prompt identification of the problem and appropriate therapy are essential to prevent decompensation and death. Respiratory patterns, coupled with specific historical and physical findings, will help narrow the differential list and lead to a more focused diagnostic and treatment plan. Stertor or stridor and an obstructive respiratory pattern, marked by prolonged inspiratory or expiratory phases with full lung expansion, are indicative of anatomic or functional airway obstruction. Treatment involves oxygen, sedation, cooling as needed and intubation if severe. A restrictive pattern, or shallow, rapid thoracic excursions, is indicative of pleural space or pulmonary parenchymal disease and these are further differentiated via auscultation. Oxygen and thoracocentesis will help most patients with pleural space disease. Treatment for pulmonary parenchymal disease involves oxygen, sedation as needed, and disease specific therapies.

MONITORING ICU PATIENTS

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Monitoring comes from a Latin term “monere” meaning “to warn”. The aim of monitoring patients in the intensive care unit is to identify problems and correct them before they lead to irreversible changes that lead to the patient’s death. It is all about assessing oxygen delivery and ensuring that oxygen is available to every cell in the body. Oxygen is delivered by the cardiovascular system and taken by the lungs. This makes monitoring the cardiovascular and respiratory systems vital. Intensive care is usually an expensive undertaking and knowing the prognosis can assist us in our discussion with owners. It will also give us realistic expectations. This talk will discuss the principles behind monitoring patients requiring intensive care.

DERMATOLOGY (VIRBAC)

DIAGNOSIS AND MANAGEMENT OF CANINE ATOPY

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Canine Atopic Dermatitis (AD) has been defined as a genetically predisposed inflammatory and pruritic allergic skin disease with characteristic clinical features. It is associated most commonly with IgE antibodies to environmental allergens. The disease has no pathognomonic clinical signs that permit a definitive diagnosis to be made upon initial owner interview and clinical examination. A definitive diagnosis can thus be challenging to make. A set of practical guidelines that can be used to assist practitioners in the diagnosis of canine AD have been published. It is imperative that initial investigations be aimed at ruling out other skin conditions with clinical signs that can resemble, or overlap with canine AD.

OVERVIEW OF CUTANEOUS AUTO-IMMUNITIES

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There is very little epidemiological data on Pf. In one study at Cornell in the USA the incidence in a dermatology referral clinic was 3 cases per 1000 dogs seen. In another study at Michigan State University Pf accounted for 1% of skin biopsy specimens submitted. In another study of canine autoimmune skin disease, Pf accounted for a third of the cases seen with autoimmune skin disease.

Genetic factors are likely to play a role in the disease, as there are definite breed predispositions. Breeds with an increased incidence in published work include bearded collie, Akita, Newfoundland, Schipperke, Doberman, chow, Shar-Pei and dachshund. In some regions chows and Akitas have a significantly higher incidence than other breeds. There is no sex predilection. The age of onset is most commonly between about 4 and 6 years but the range is from less than 1 to 16. Sunlight exposure is an environmental factor that induces disease flare.
OTITIS EXTERNA

DIAGNOSIS AND TREATMENT OF OTITIS EXTERNA

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Otitis externa is one of the most common reasons why a dog is brought to a veterinarian and accounts for up to 15% of all canine veterinary case presentations. The causes of otitis externa are divided into primary and secondary causes and predisposing and perpetuating factors. All these factors should be considered when diagnosing and treating otitis externa in order to successfully manage these cases. Otoscopy and cytology of the ear canals are essential diagnostic procedures in every case of otitis externa. Other diagnostic procedures such as culture and sensitivity and imaging such as radiography, CT and MRI are indicated in some cases. Proper ear cleaning is indicated in most cases of otitis externa. Topical treatment is indicated in almost every case and systemic treatment in some cases as well. Biofilms are a newly recognized complication with especially Pseudomonas otitis externa. Management of specific causes of otitis externa such as allergic otitis externa and Pseudomonas otitis externa will be discussed. Owner compliance is crucial for successful management of otitis externa.

SMALL ANIMAL SURGERY

SURGICAL MANAGEMENT OF TL INTERVERTEBRAL DISC DISEASE

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Dogs presenting with acute onset of spinal pain and/or neurological deficits are often suffering from a condition called Intervertebral Disc Disease (IVDD) and showing the early signs of Intervertebral Disc Prolapase (IVDP). This disease is hereditary and more frequently found in small breed dogs with the Dachshund being overrepresented. Pekingese and Maltese and are often also affected. The condition occurs due to an early chondroid degeneration of the nucleus pulposis in the intervertebral disc space. In some cases protrusion and extrusion of this central disc material occurs and results in entrapment of the spinal cord and adjacent nerve roots. The thoracolumbar region carries by far the highest incidence of disc protrusion and will be the emphasis of this article. Clinical signs include change in behaviour; yelping when picked up, tense abdominal and paraspinal muscles and hind limb ataxia. Acute paralysis may be immediate in cases where prolapse of the central nucleus pulposis is explosive or it may become apparent with time as more disc material leaks out through the rupture. Surgical decompression is indicated in almost all cases of disc prolapse where neurological signs are evident and no improvement occurs within a 24-48 hours period. Success rate with the procedure is high and many dogs regain full function following surgery.

SURGICAL MANAGEMENT OF LUMBOSACRAL DISC DISEASE

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Lumbosacral disease is a common condition mainly affecting large breed dogs. The common presentation is marked pain over the LS joint. However some dogs can develop neurological derangements in the hindquarters from ataxia to urinary and faecal incontinence. MRI is the gold standard in detecting DLS, however CT can be helpful on its own or in combination with MRI. Medical management should be tried as a first line in patients that present with pain as the only clinical sign. Unresponsive and patients with neurological derangements should have surgery. Surgical treatment is controversial however the general consensus is that a dorsal laminectomy should be performed to provide decompression of the cauda equina. A number of other procedures are combined with a dorsal laminectomy at the surgeon’s preference to best treat the condition in their minds. The prognosis is good in patients presenting with pain and mild neurological derangements. The prognosis is poor in patients presenting with urinary and faecal incontinence.

SURGICAL TREATMENT OF CERVICAL DISC DISEASE VENTRAL SLOT VS DISTRACTION STABILISATION

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Dogs presenting with acute onset of spinal pain and/or neurological deficits are often suffering from a condition called Intervertebral Disc Disease (IVDD) and showing the early signs of Intervertebral Disc Prolapase (IVDP). This disease is hereditary and more frequently found in small breed dogs with the Dachshund being overrepresented. Pekingese and Maltese and are often also affected. The condition occurs due to an early chondroid degeneration of the nucleus pulposis in the intervertebral disc space. In some cases protrusion and extrusion of this central disc material occurs and results in entrapment of the spinal cord and adjacent nerve roots. The thoracolumbar region carries by far the highest incidence of disc protrusion and will be the emphasis of this article. Clinical signs include change in behaviour; yelping when picked up, tense abdominal and paraspinal muscles and hind limb ataxia. Acute paralysis may be immediate in cases where prolapse of the central nucleus pulposis is explosive or it may become apparent with time as more disc material leaks out through the rupture. Surgical decompression is indicated in almost all cases of disc prolapse where neurological signs are evident and no improvement occurs within a 24-48 hours period. Success rate with the procedure is high and many dogs regain full function following surgery.
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PHYSIOTHERAPY

WHAT IS IT ALL ABOUT AND HOW CAN IT CONTRIBUTE?

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Veterinary Physiotherapy is starting to play an important role in managing the veterinary patient holistically. This profession addresses the neuro-musculoskeletal systems, (as well as cardiorespiratory), recognising functional dysfunction and altered biomechanics, which leads to symptomatic pain and compensation patterns and inevitable altered function. Veterinary physiotherapy aims to relieve, recover and prevent altered biomechanics and dysfunction to ensure optimal function for patients, regardless of the origin of the problem (surgical, traumatic, age).

REVIEW OF THE SCIENCE BEHIND THE MODALITIES USED

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Veterinary Physiotherapy is evidence based scientific profession. Majority of the modalities currently being used was adapted from the medical field. These modalities include manual therapy, hydrotherapy, electrotherapy, rehabilitation exercises and others. Research specific to the application of these modalities in the animal field is slowly emerging.

THE SURGICAL PATIENT

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Veterinary Physiotherapy for the surgical patient aims to speed up healing, alleviate pain, speed up recovery, empower owners as part of the rehabilitation team, recognise and prevent complications, prevent re-injury and to ensure optimal recovery to return to highest functional level. General protocols will be explored. This paper will look at a basic outline of treating the surgical patient.

THE NEUROLOGICAL PATIENT

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The neurological patient can become a difficult case to manage. Veterinary physiotherapy utilises modalities such as PNF and other manual techniques to aid in normalising tone, addressing proprioception and optimising function. Many patient specific rehabilitation exercises and a carefully setup programme will put the focus on functional recovery, making patient management easier for owners and veterinary staff members.

VETERINARY PHYSIOTHERAPY: CARDIORESPIRATORY AND ICU PATIENTS

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Physiotherapy interventions for cardiorespiratory patients in the medical field are instrumental in the recovery of the patient. This field is slowly growing within the veterinary profession.
ONCOLOGY CASES OF DOGS AND CATS TREATED WITH ELECTRON RADIATION THERAPY

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A brief explanation of how electron radiation works to eliminate cancer cells followed by in depth discussion of the cases presented. The cases will cover squamous cell carcinomas caused by excessive solar exposure and other SCC’s of different origin. Methods of controlling the solar exposure in both dogs and cats. Cutaneous Mast Cell Tumours their origin and use of radiation before surgery. Mesenchymal Cell Tumours (spindle/soft tissue cell tumours) and the advantage of electron radiation therapy before and after surgery.

UNDERSTANDING THE BASICS OF CANCER AND THE VARIOUS METHODS OF TREATMENTS

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A brief incomplete introduction (revision) to the basics of cell anatomy, mitosis, types of tissues and their normal mitotic rates. DNA, genes, the tumour suppressor gene (TSG) controlling the rate of mitosis, damage to tumour suppressor gene resulting in cancer (uncontrolled growth of damaged cells). The life cycle of the normal cell and apoptosis (cell suicide). The life cycle of the cancer cell and avoidance of apoptosis. The basics of surgery, chemo and radiation therapy the advantages and disadvantages of each and why they are used in combination often very successfully. Finally a brief discussion on metronomic therapy and palliative treatment.

ANIMAL ETHICS

ANIMAL SENTIENCE, ANIMAL ETHICS AND THE VETERINARY PROFESSION

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Sentience in both human and non-human animals is the capacity to feel both pleasant and aversive sensations, which are conveyed to the brain via peripheral nerves and to experience pleasant and aversive brain generated emotions. In other words, it is the capacity to feel and to think. Sentient animals have interests that are linked to their nature. These interests are thoughtlessly and ignorantly violated in their use by humans. Animal sentience is about feelings that matter to the animals experiencing. This creates a moral imperative for humans to both respect and protect the welfare of these animals.

In recent times, the developing science of animal sentience has become pivotal in informing the advancement of animal welfare and the theories of animal ethics and animal rights. Awareness, feelings and cognition occur in different forms, degrees and combinations in different animals which have developed along different evolutionary paths. Notwithstanding this, veterinarians ought to be advocates for the welfare of farmed domesticated and wild animals and others and not be passive participants in their exploitation. This presentation will explore why sentience matters for practice and policy.

PERPETRATORS OR PROTECTORS? WHY THE VETERINARY PROFESSION CANNOT IGNORE THE RIGHTS OF NON-HUMAN ANIMALS

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There is a disjuncture between society’s perception of the caring role that it presumes veterinarians play and the reality on the ground of a profession that is deeply conflicted and in some cases the perpetrator of problematic and unethical behaviour. The paper will provide an overview of current landscape in relation to animal protection, welfare and rights and will examine the veterinary profession and veterinary associations in South Africa in relation to the political and ideological lens they apply to the relationship between humans and non-human animals. It will explore the role of veterinarians in the social construction and exploitation of non-human animals and key gaps in veterinary practices, curricula and policy. It will examine the “wildlife” and vivisection industries as examples of important sites of struggle for why we should be expanding and deepening conversations about human relationships with non-human animals and why there is a need to reshape public discourse, advocacy policy and legislation around controversial practices in South Africa, and what this recasted responsibility could look like.
CAN HAPPINESS BE MEASURED? THE BASICS OF SCIENTIFIC ANIMAL WELFARE ASSESSMENT FOR VETERINARIANS

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Ruth Harrison’s book “Animal Machines” published in 1964, led to worldwide debate about the confinement of farm animals. The Brambell Committee (Brambell, 1965) established by the British government, reported that animal welfare embraced both physical and mental well-being, and called for research into veterinary medicine, stress physiology, animal science and, in particular, animal behaviour (Hemsworth et al., 2015). Thus the new discipline of animal welfare science emerged. Neuroscience, neurophysiology and immunology have all since contributed to the multidisciplinary nature of animal welfare science. Science helps us formulate well-considered ethical viewpoints on animal welfare matters. Ethics is informed by principles and beliefs, as well as science. Good science enables better ethics.

BETTER SCIENCE FROM FEWER ANIMALS – WHERE RESEARCH AND ANIMAL WELFARE MEET

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Widely accepted international principles that govern the humane care and use of non-human animals for scientific purposes (i.e. research, testing or education) are often expressed in terms of the ethical framework of the Three Rs. This represents the Replacement of animals by non-animal models whenever possible; the Reduction of the number of animals used to the minimum required to yield scientifically valid results; and the Refinement of experimental design and animal care standards, in order to limit the potential for pain, suffering, distress or lasting harm – thus improving animal wellbeing and honouring the dignity of animals.

South African ethical and regulatory standards for animal research are facing significant change, as reflected in the revision of National Standards and Guidelines for animal care and use, and regulatory requirements. Veterinary and para-veterinary professionals who work in this field – whether on clinical or oversight basis, or as member of Animal Ethics Committees – are facing the challenge of effectively implementing the Three Rs, while being often under-equipped to do so in the absence of formal training in this specialised field.

Education and training initiatives to empower veterinary and para-veterinary professionals in ethical decision-making nationally will be discussed in the context of Three Rs implementation.

TAIL DOCKING IN DOGS: THE EVIDENCE AND THE ETHICS TEN YEARS ON

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Non-therapeutic tail amputation, also referred to as prophylactic tail docking and tail maiming, is the amputation of a dog’s tail at varying lengths to suit the recommendations of a breed standard. On 1 June 2008, the South African Veterinary Council (SAVC) decided that it would no longer condone the routine amputation of puppies’ tails and pronounced the procedure unethical for veterinarians to perform (<www.savc.co.za>). Since then the procedure has been performed mostly by dog breeders although many breeders have chosen to abandon tail docking and most of the breed standards have been amended to accept dogs with intact tails. In South Africa currently veterinarians are allowed to amputate dogs’ tails only for valid therapeutic reasons. As nearly a decade has passed since the SAVC’s somewhat controversial decision, it is perhaps a good time to reflect and objectively consider the evidence base that is available on the topic, and possibly to finally come to a united ethical view on the procedure of routine tail docking for puppies. This article presents some of the literature and current information available on tail docking in dogs.

WILDLIFE

REVIEW OF BASIC RUMINANT DIGESTION – APPLICATION IN GAME RANCHING

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General principals of ruminant digestion is reviewed with the focus on practical application in game farming. Wildlife veterinarians in the field are often confronted with issues of sub-optimal production, disease and even deaths in antelope species, which can be attributed (at least indirectly) to sub-optimal nutrition. One reason is the intensification of wildlife farming practices, which led to animals not having access to adequate natural vegetation in many instances. Another problem is where species are kept in habitats not suited to their needs. It is necessary for veterinarians dealing with these issues to have a basic understanding of ruminant digestion and nutritional needs in order to provide meaningful advice to farmers in this regard.
RHINO IMMOBILIZATION, ORPHAN HANDREARING, DEHORNING AND TREATING POACHING VICTIMS
– RECENT DEVELOPMENTS

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With the current rhino poaching epidemic, a lot of work has been done on improving techniques involved in rhino anaesthesia, the hand rearing of orphaned rhino calves, and the treating of injured rhino poaching victims.

As far as rhino anaesthesia is concerned, the original drug, etorphine hydrochloride is still the drug of choice. It is, however, a severe cardiorespiratory depressant – the symptoms of which are alleviated using butorphanol together with oxygen supplementation. The hypertension associated with opioids is remedied to a large extent using azaperone in the cocktail. Hyaluronidase is added to decrease the induction period. Recent research has shown that a sternal recumbency anaesthetic is far superior and safer than an anaesthetic in lateral recumbency.

One of the rhino poaching consequences is that many rhino calves are orphaned. Here I usually use a butorphanol, azaperone and hyalase combination or miniscule amounts of etorphine, azaperone and hyalase in order to immobilize them. Dehydration, hypothermia and digestive issues are common place. The administration of rhino plasma to calves showing clinical signs associated with a low immunity can be a vital tool. Antibiotics and anti-inflammatories are also used when indicated.

The only effective and practical proactive measure at the moment as far as rhino poaching is concerned, is dehorning. The treatment of poaching survivors is now common place. It is virtually impossible to remove the bullet so the wound needs to be flushed out with antiseptics and the animal treated with antibiotics and anti-inflammatories. More recently, I have had to treat rhinos that have been poached using etorphine and darts – the survivors are then left walking around with huge holes extending into their paranasal sinuses. The holes are closed using a plastic type prosthesis and allowed to granulate underneath.

KRUGER NATIONAL PARK ANTI-RHINO POACHING K9 UNITS
Johan de Beer
No paper submitted

OVERVIEW OF DISEASES OF THE AFRICAN RHINOCEROS
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With increasing threats from poaching and habitat fragmentation, African rhinoceros are being more intensively managed. Therefore, wildlife veterinarians need to be aware of diseases, diagnostic and therapeutic approaches that may be required to address health issues in these species. This presentation will provide an overview of some of the infectious and non-infectious diseases that have been reported in black and white rhinoceros. The information serves as a foundation for dealing with morbidity and mortality in African rhinoceros.

CHEETAH MANAGEMENT – LESSONS LEARNT
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I started working at the Hoedspruit Cheetah Project in 1995. The reason for appointing a full time vet was because of a very high percentage of neonatal mortalities experienced in the cheetahs. Together with a committee of experts from the Onderstepoort Faculty of Veterinary Science, the problem was found to be a Vitamin E deficiency complicated by a Salmonella septicaemia. A supplement was developed and added to the meat that was fed and the problem disappeared literally overnight. The initial anaesthetics that I used were Saffan (intravenous) or a Ketamine/Xylazine combination. Zoletil soon came on the market and was a wonderful drug to use, especially in debilitated animals. I had a few problems however - losing one animal due to an allergic type reaction and having similar problems with three other animals, which we managed to pull through. Medetomidine/Ketamine combination became my anaesthetic of choice until the advent of Bamanil (Butorphanol : Azaperone : Medetomidine combination).

Antibiotics used commonly in cheetah include long acting Penicillin (Lentrax, Procapan L/A) Enrofloxacin (Baytril), Amoxycillin: Clavulanic Acid (Synulox) and more recently Cefovecin (Convenia) A vaccination program starting with an inactivated vaccine Felovax IV plus Calicivax as soon as possible after 9 weeks followed by a booster 3 weeks later and another booster of live vaccine Felocell 3 or 4, three
weeks later. Rabies vaccine is also given twice in the same period. Mild cases of Herpes and Calici virus infections have been diagnosed periodically – even now that we vaccinate the cheetahs twice a year. Internal parasites do not appear to be too much of a problem but external parasites, especially fleas, can be. Ticks are not much of a problem, however. Frontline Plus, Bravecto and Comfortis are used to combat these potential problems. Fungal infections of the hair causing the hair to break off have also been diagnosed in the younger animals. The causative organism, *Trichophyton mentagrophytes* is easily controlled using a lime sulphur dip. True cases of ringworm were diagnosed at another rehabilitation centre, which responded well to six weeks of treatment with Griseofulvin. This centre also had two cheetahs die due to bovine tuberculosis (*Mycobacteria bovis*), which may have been introduced from infected carcasses. More recently, mortalities were experienced due to a severe, acute nephrosis. Extensive research eventually found that this was caused by NSAIDs residues, in this case phenylbutazone in the meat that was fed.

In the last year, a syndrome appeared in younger cheetah that started biting the ends of their tails. Histopathology revealed dermatitis, peri-neuritis and a vasculitis but the aetiology is still unknown.

**COMMON AND EMERGING INFECTIOUS DISEASES OF FARMED SABLE ANTELOPE**

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The sable antelope is a commonly farmed species in South Africa mainly due to their attractiveness especially among trophy hunters. The high value of sable antelope has resulted in animals being kept in smaller camp systems and with this intensification comes an increased risk to diseases. Common infectious diseases include Haemonchosis, Theileriosis, Clostridial myositis, Teasiosis and Coccidiosis. Emerging diseases include Brucellosis, Q-fever, Pneumonia and Tuberculosis. Other documented diseases include Babesiosis, Dermatophilus and Rift Valley Fever. Haemonchosis is by far the largest threat to the sable farming industry, as sable antelope appear to be highly susceptible to *Haemonchus contortus* infestation. Deworming is commonly performed on farms but misuse of anthelmintics has led to widespread resistance. Theileriosis may be more common in sable antelope in certain regions of South Africa due to the tick distribution. This area seems to be ever increasing. Holistic parasite management and better farming practices may aid in reducing clinical disease in both Haemonchosis and Theileriosis. The aim should be to breed immune and resilient sable antelope. In this paper we look at the diagnosis, treatment and prevention of the diseases of sable antelope.

**FIRST AID AND IMMOBILISATION DRUG EXPOSURE**

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Game capture (physical or chemical immobilization) often involves the use of dangerous equipment, animals and drugs which if handled incorrectly could lead to human injury and potentially death. Precautions need to be taken to avoid this. Adequate knowledge of the subject, thorough planning before a capture operation and a well trained capture team will all aid in lowering the risk of injury and death. Accidents do however happen and having a thorough knowledge of first aid and drug intoxication could be life saving. The veterinarian is often the best-qualified person to handle a first-aid case but training other personnel in the capture team is invaluable. Minor injuries resulting from capture equipment and animals are common. Occasionally animals may lethally injure a person. Most of the lethal injuries result from penetrating wounds from horns or tusks. By far the most common potential lethal risk is the accidental exposure to capture drugs like the potent opioids. Humans are highly sensitive to these drugs and small volumes may be enough to cause death. A thorough understanding of the pharmacology of these drugs and basic life-support is of utmost importance when veterinarians decide to use and handle these drugs.

**WHAT FUTURE FOR AFRICAN VULTURES?**

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The Asian vulture crisis, caused losses of >98% of the population between 1992-2007 (Cuthbert et al 2009) due to Diclofenac. Press and conservationists have been concerned with ‘sexy threatened species in Africa’ (rhino, lion, elephant), forgetting ‘natures clean up team’ – the vultures (playing a vital role in clearing away carcasses, anthrax, rabies, tuberculosis and botulism). In 2015 six of Africa’s 11 vulture spp – had an upgraded risk of extinction, (Birdlife International 2015). African vulture populations (outside protected areas) have declined by 98% in the last 30 years (Thiollay 2006). In Africa there is not a single attributable cause so control is challenging. A recent review of vulture losses (Ogada 2015) reported the use of vulture body parts in traditional medicine (‘muti’) accounting for 29% of losses. Accidental poisonings resulted in 94 vultures a year between 1970 – 2011, (3867), the greatest increase is seen in deliberate targeting by poachers (881 vultures per year 2012-2014 (2014) in total), with average fatalities 266 per incident, ranging 1-700). Carbamate pesticides are being misused by livestock owners to poison predators such as lions and hyenas (Ogada 2014), causing a reduction of crushed bone in vulture diets, leading to calcium deficiencies in developing chicks. Vulture deaths were caused by malicious or accidental poisoning 61%, traditional medicine 29%, food 1% (i.e. 91% avoidable), with 9% caused by trauma, electrical supply or infra-structure. Vulture restaurants have proven popular, but research has shown a vulture home range of 30,000 to 80,000 Km², travelling up to 250km a day (Kendall & Virana 2012), so poisoning still looms large. Vultures are vital to the eco-system consuming 70% of all meat in the Masai Mara. What can and should we be doing as a profession to slow or reverse this calamity.
REFERENCES


TRIAGE AND FIRST AID FOR INJURED FREE-LIVING AFRICAN VULTURES

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Three African vulture species are now defined as ‘Endangered’, whilst four are ‘Critically Endangered’. Not only for welfare reasons, but also to maximise the recovery and release of vultures back to the wild, prompt and efficient care of wildlife casualty cases is vitally important. Managing wildlife casualty cases is akin to working in a war zone. All birds should undergo initial ‘triage’: cases are given a brief (so as not to cause excessive stress), clinical examination, with cases being divided into:

• Hopeless (obvious critical injuries) should euthanase as soon as possible
• Critical – needs urgent care to save
• Less urgent or critical needs.

EXOTICS

AVIAN EMERGENCIES, TRIAGE AND STABILISATION

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Many general practitioners have had unpleasant experiences with ill birds in that they are perceived to die as soon as the well meaning vet begins to examine them. Often the vet is thus cautious to treat ill avian patients. With a basic understanding of what constitutes an emergency in an avian patient as well as the initial steps to take in stabilising the bird, treating the ill bird may become a much more rewarding experience.

RECENT ADVANCES IN AVIAN ORTHOPAEDIC SURGERY

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In treating birds with fractures, the clinician must be prepared to think laterally, considering each case individually, taking into account: compound / closed, proximity to a joint, species temperament (in respect of post-operative care) and life style (in respect of degree of perfection achievable and necessary for an acceptable life).

For many years now, the hybrid or tie in fixator has been the main stay technique in avian orthopaedics, within this and many other facilities.

This paper, will be focused on newer techniques in avian orthopaedics. Recent adjustments to the hybrid-fixator technique, broadening its traditional applications to improve the management of more complex fractures affecting the diaphyses. Elbow and inter-tarsal luxations, splay legs, distraction osteogenesis, stabilisation of cervical fractures, management of bilateral mandibular fractures, mandibular deficits and mandibular mal-alignment will all be discussed.
REFERENCES


AN APPROACH TO THE ANOREXIC RABBIT

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A history of anorexia is one of the most common clinical presentations in the pet rabbit. The domestic rabbit still has the physiology and behaviour of a prey species and will respond to stress or pain with the same instincts as its wild ancestors. Anorexia is not a disease in itself but can be caused by any number of conditions including medical conditions, trauma and simple stress. Discerning the cause of the anorexia requires a detailed history, a thorough physical examination and potentially a variety of diagnostic procedures. Common underlying conditions include dental disease, gastrointestinal disorders, urogenital disease, hepatic disease, renal disease, respiratory disease, severe pododermatitis, arthritis, fractures and ingested toxins. Nutritional support of the rabbit during the diagnostic phase is vitally important to prevent or reverse hepatic lipidosis and to re-establish proper gastrointestinal tract (GIT) motility.

BASIC REPTILE HUSBANDRY, MEDICINE AND SURGERY

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Reptiles are, on the evolutionary scale, very ancient creatures. They have survived almost unchanged for many millions of years and are without exception supremely adapted to their individual environmental niches. In order to keep and treat reptiles effectively one has to understand one fundamental concept: Reptiles are ectothermic, having no capacity to endogenously regulate their own body temperature. They use outside heat sources eg basking on warm rocks. They are extremely resilient within their Preferred Optimum Temperature Zone (POTZ) but have poor adaptability to varying environmental conditions. Each species has very specific environmental requirements and will only be healthy if kept within those parameters. Common diseases are discussed.

HOW NOT TO KILL YOUR EXOTIC PATIENTS – COMMON PITFALLS AWAITING THE GENERAL PRACTITIONER

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The veterinarian may be faced with a wide assortment of species over the course of their career. Although it is often possible to extrapolate from common companion animal medicine to the more exotic species, one has to be careful to take into account the specific idiosyncrasies of many exotics. It is uncomfortably easy to make a fatal mistake, using drugs or methods commonly employed in dog and cat medicine. This article will aim to point out common pitfalls, enabling you to give a better (and less stress-filled) service to your clients.

NURSES

PERILS FOR PUPPIES & KITTENS – TALKING TOXICITIES

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Puppies and kittens undergo significant developmental changes during the first few months of life that affect toxin absorption, distribution, metabolism and excretion. Together with their inquisitive nature, this makes them a unique population at increased risk for intoxication with both unusual toxins as well as arb clinical presentations of these toxins. Quick, efficient and successful decontamination remains one of the basic principles of the treatment of toxicity in this patient population as in adults. Rodenticides, nonsteroidal anti-inflammatory drugs (NSAID), antidepressants, herbicides, mushrooms, silica gel, cleaning products, chocolate, amphetamines, birth control products, flea products, insoluble calcium oxalate plants and liquid potpourri are the most common toxicants for animals under a year of age. Unusual presentations, clinical signs and different recovery times should be expected to adult animals.

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Fluid management with colloid and crystalloid solutions remains controversial peri-operatively. The selection and use of resuscitation fluids is based on physiological principles, but clinical practice is determined largely by clinician preference.

Fluid administration during anaesthesia is necessary to control vascular tone, maintain circulating volume, and improve cardiac output (CO) to provide oxygen to all tissues. Over-hydration and excessive fluid administration can be detrimental to patients just as dehydration and hypovolemia can lead to adverse consequences.

Potential adverse effects of overly aggressive fluid therapy include volume overload, pulmonary oedema, detrimental fluid shifts (eg, oedema of the brain, kidneys, and intestinal tract), electrolyte and acid base derangements, exacerbation of haemorrhage, and hemodilution coagulopathy.

“BACK TO SCHOOL ARRHYTHMIC” DRUG & INFUSION CALCULATIONS

Dr Lynette Bester

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There is an increasing demand on veterinary nurses to take more and more responsibility for drugs and drug protocols. The ability to do accurate and quick drug calculations is an essential skill for nurses.

This lecture aims to explain calculations in a step by step approach for routine drugs used during anaesthesia, but also include fluid rates and constant rate infusions. There are quite a few calculators available online, but it is still important to understand how these calculations are done and to develop a “gut feel” if a dose or dose rate seem to be wrong.

Additional reading:

- https://www.vetnurse.co.uk/nursing/w/vet-nurse-revision_1/calculation-of-drug-doses-key-notes.aspx — Dosage Calculations for Veterinary Nurses & Technicians by Terry Lake Published March 15th 2004 by Butterworth-Heinemann

WHY IS PAEDIATRIC CARE IN ICU IMPORTANT?

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Paediatric patients have a unique physiological system. This unique physiology results in considerable differences in hemodynamic parameters, drug dosages, laboratory data, and diagnostic imaging compared with those of adults. It is thus imperative that caregivers of these young patients be familiar with these differences to be able to treat and monitor these patients appropriately.

OPENING A CAN OF WORMS – THE 3 TERRORS

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Values are those things that mean the most to us as individuals. They are emotions, personal beliefs and behaviours that we hold as most dear to us. In my story, the most important values were friendship, making a go of it in South Africa and fulfilling my future as a veterinarian. Those were the three most valuable things in my life at that stage.

Your mind-set, performance, likes, dislikes and even goals are based on your values. Values dictate your choice in clothing, the TV programmes and movies you enjoy, and if, when and whom you will marry, and even whether you will have children. Your values will determine your response to any given situation. Values drive our decisions and judgements. Our perceptions of what is right and wrong, good and bad derive from whether something is aligned with our values or not. You will find that you like people who support or share your values and dislike people who don’t. Every person has his or her own unique appreciation of what values are most appropriate for them and being different to your own does not necessarily make them good or bad. It simply makes us unique.
The truth is that most people have spent little, if any, time identifying their personal values. A further complication I find with my clients is that the values they list at first are sometimes not their true values at all. When this happens, we need to spend time together, carefully examining the meaning of each one, using the most appropriate terminology, matching it to their current situation – behaviour, activity and status quo are often quite revealing; for example, adventure addicts are far less likely to have certainty as one of their core values – as well as differentiating their true values from values they wish they had. For instance, if you are chronically obese, you cannot have fitness as a priority value; rather, this is a value you want, or an aspirational value. Our past activity has resulted in our current situation guided by our value systems. Actions that are not aligned with our values cause conflict, either on a conscious or subconscious level, and manifest as discomfort; this disconnect is also referred to as “cognitive dissonance”.

Having set that foundation will give you a fantastic start towards achieving your objectives in life. We can now continue with confidence, knowing that your inner self (values) is in alignment with your life’s vision. You should already be able to sense the resultant satisfaction, which will create a shift in your consciousness. You no longer have to wait for things to get better, they are better. You can create the better circumstances for yourself and nobody else. Mastering this skill will give you the ultimate control you wish to have over your life.

LIFETIME NUTRITION – START AT THE VERY BEGINNING

Guy Fyvie BVSc

Hill’s Pet Nutrition

How we feed growing puppies and kittens not only affects their current wellbeing, but has long term consequences on their health and happiness. Proper skeletal development, immune systems, brain function, skin etc. are all affected by the way we feed during the growth phase.

We will cover the nutrients of concern and how they interact, as well as protocols that should be followed to ensure puppies and kittens that grow up to be healthy adults.

SASVEPM

THE INTERPRETATION OF LABORATORY DIAGNOSTIC TEST RESULTS FOR DISEASE DIAGNOSIS

Joule-Gaby Kangumba¹

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Laboratory diagnostic tests play a key role in modern animal health management practice and the control of infectious diseases. Diagnostic tests are applied to individuals or populations for the purpose of documenting freedom from disease in a country or region, preventing spread of disease through trade, contributing to eradication of an infection from a region or country, confirming diagnosis of clinical cases, estimating infection prevalence to facilitate risk analysis, identifying infected animals toward implementation of control measures, and classifying animals for herd health or immune status post-vaccination (OIE Terrestrial manual).

The interpretation of diagnostic test results depends on both the ability of the test to distinguish diseased from non-diseased subjects and the particular characteristics of the animal and setting in which the test is being used. This presentation discusses the diagnostic performance characteristics and interpretation of test results of tests that have been validated according to OIE principles of validation of diagnostic assays for infectious diseases. It begins with a summary of how basic criteria of validated tests are determined, with an emphasis on diagnostic sensitivity, diagnostic specificity and predictive values of test results, and then discusses how field workers should understand, interpret and use test results as tools to classify animals that have been tested in the field as diseased or non-diseased. A worked example taking both the screening and confirmatory tests commonly used in the country will be used for illustration.

DETECTION AND DISTRIBUTION OF BOVINE TRYPANOSOMIASIS IN MALAWI

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Polymerase chain reaction-restriction length polymorphism (PCR-RFLP) was used to identify trypanosome species in cattle from the three regions of Malawi. A total of 444 DNA samples were screened for trypanosomes using PCR-RFLP performed on whole blood samples collected from cattle between January 2016 and February 2016. A questionnaire was administered to the farmers of sampled cattle that contained sections on demographics and livestock management. Due to its zoonotic importance, T.brucei status was chosen to compare data among surveyed farms and Mann-Whitney U tests were employed for these comparisons. Prevalence information and collected questionnaire data were analysed using OpenEpi.

Out of the 440 cattle with DNA samples, 2% (n=9; 95% CI: 1-3) were positive for Trypanosoma brucei, 3% (n=14; 95% CI: 1-5) were positive for Trypanosoma congolense and 27% (n=120; 95% CI: 23-31) were positive for Trypanosoma theileri. T.theileri and T.congolense appeared randomly distributed across the country while T.brucei was restricted to the central and southern regions of Malawi. The
majority of the respondents were farmers (92%; 95% CI: 82-97) that were literate with the median education level being grade 7. Most respondents were smallholder farmers with a median herd size of 7 cattle and owning 1.2 hectares of land. There were no differences between the T.brucel positive and T.brucel negative groups in respect to education level (p=0.340), cattle owned (p=0.449) and land owned (p=0.920).

**MOLECULAR EPIDEMIOLOGY OF BOVINE TRYpanosomiasis AMONGST PASTORALIST CATTLE: A CASE OF MONDULI DISTRICT, NORTHERN TANZANIA**

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African trypanosomiasis is a devastating disease affecting both humans and animals in sub-Saharan Africa including Tanzania. Determination of seasonal pattern of this disease in wet and dry season is crucial for epidemiological understanding and for strengthening management practices in pastoral communities. The objective of this study was to estimate the prevalence of animal trypanosomiasis infections in contrasting seasons (wet and dry season) and identify risk factors associated with animal trypanosomiasis infections amongst pastoralist cattle of Monduli district, Tanzania.

In a cross-sectional study design, 960 cattle were randomly selected from ten study villages in both wet (April–May 2015) and dry seasons (August-September 2015). Trypanosomes infection was assessed using PCR, the internal transcribed spacer one (ITS1) gene. Tsetse flies were collected in study villages and Polymerase Chain Reaction was used to detect trypanosomes in the flies. Cattle-level and herd-level data were gathered using a standardized questionnaire.

The overall prevalence of trypanosomes was found to be 5.4 % and 4.2 % in wet and dry season respectively with the majority of the infections due to Trypanosoma vivax. Also mixed infection involving T. vivax and T. congolense was identified in this study. Breed, age, sex, season, and other potential predictor variables examined were not significant for PCR positivity for trypanosomes.

The results revealed a wide spread of trypanosomes infections in the district despite of low clinical cases which may be due to some outlined potential reasons. Furthermore, this study provides baseline findings that may guide to design a better study to improve understanding of AT occurrence in contrasting seasons as well as tsetse flies infestations in pastoral communities.

**THE COORDINATE CONFUSION**

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Geographical coordinates can be recorded in several different formats. In South African Veterinary Services incorrect coordinates are often reported in disease reports due to confusion between the different formats. The official formats used by South African Veterinary Services are Degrees, Minutes and Seconds or Decimal Degrees, depending on the Province. Different provincial veterinary services have different disease reporting systems and formats.

This presentation will explain the different geographical coordinate formats (decimal degrees, degrees minutes seconds and degrees and decimal minutes, how to distinguish between them, their use and common errors experienced when reporting geographical coordinates. Several maps will be used to illustrate these points. Common errors that will be illustrated and discussed are swopping latitude and longitude, writing decimal degrees in the degrees minutes and seconds format and vice versa. This causes coordinates for disease reports to be reported incorrectly and some coordinates indicating the outbreaks falling in the incorrect province, another country or even in the ocean.

**PREVALENCE AND RISK FACTORS FOR ANTIMICROBIAL RESISTANT STAPHYLOCOCCUS AUREUS ISOLATES FROM POULTRY MEAT PRODUCTS IN SOUTH AFRICA, 2015-2016**

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The treatment of drug resistant S. aureus infections has become a serious challenge in health care settings and presents a major threat to global public health. Methicillin resistant S. aureus (MRSA) strains have been detected in a variety of food products of animal origin in countries throughout the world; however, the mechanisms for transmission of these pathogens to humans are not clearly defined. The aim of the study was to identify and evaluate the risk factors for antimicrobial resistant S. aureus isolates from poultry meat samples in South Africa. We investigated the hypothesis that specific factors related to the origin and type of meat products, type of facility, and practices at facilities contribute to the contamination of poultry meat products with antimicrobial resistant S. aureus. The S. aureus isolates were tested for susceptibility to 14 antimicrobial compounds using the Kirby-Bauer Disc Diffusion method. Risk factors were evaluated using logistic regression analysis of responses to questionnaires. Of the 311 samples tested, 106 (34.1%) were positive for S. aureus (95% CI 28.9%–39.7%). The prevalence of antimicrobial resistance amongst 72 S. aureus isolates tested was 55.6% (n=40, 95% CI 43.4%–67.3%). Out of 72 S.aureus isolates, the prevalence of MRSA was 20.8% (15 out of 72 isolates, 95% CI 12.2%–32.0%). Multi-
drug resistant strains were detected in 22.2% (95% CI 13.3%-33.6%) of isolates (16 out of 72 isolates). The associations between the presence of MRSA and origin of the product (p= 0.160), type of meat product (p= 0.962) and type of facility (p= 0.115) were not statistically significant. The presence of MRSA emphasizes the need for further studies to elucidate the possible health hazards for consumers. We recommend that comprehensive antimicrobial resistance surveillance and risk assessment be conducted at all levels of the food chain using a One-Health approach.

### PREVALENCE OF SALMONELLA SPP. IN SLAUGHTER CATTLE, THE ABATTOIR ENVIRONMENT AND MEAT SOLD AT RETAIL OUTLETS IN GAUTENG PROVINCE

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Salmonellosis is an important foodborne disease worldwide. There is a dearth of comprehensive recent information regarding the prevalence of *Salmonella* spp., in beef production in South Africa, primarily due to lack of targeted monitoring of foodborne pathogens. The aim of this study was to determine the prevalence of *Salmonella* spp., in slaughter cattle and environments in red meat abattoirs and meat products sold at retail outlets in Gauteng Province, South Africa. In a cross-sectional study, 517 various types of samples (meat, swabs, water) were collected seasonally from a random selection of 12 abattoirs (n=252) and 31 retail outlets (n=265) between November 2015 to November 2016. The isolation and identification of *Salmonella* spp., were performed using standard microbiological techniques. The prevalence of *Salmonella* spp. was 9.6% (25/252) and 9.8% (26/265) for abattoir and retail outlet samples respectively. In abattoir samples, the frequency of isolation of *Salmonella* spp. was 44% for effluents, 27% for walls and floors; 13% for perineal swabs; 12% for carcass rinsates; 10% for carcass swabs and 10% for faeces. For meat samples collected from retail outlets, the highest frequency of isolation of *Salmonella* spp. was in minced meat (16.0%) and the lowest in biltong (2%). The frequency of isolation of *Salmonella* spp. was 15% for cold meat, 10% for boerewors and 9% for brisket. Data from the study indicate the extent of contamination by *Salmonella* spp. in the selected abattoirs studied and, more importantly, the risk of salmonellosis posed to consumers of contaminated, improperly cooked meat sold at retail outlets in Gauteng Province.

### ANTIMICROBIAL RESISTANCE PROFILES OF LISTERIA MONOCYTOGENES ISOLATES FROM RAW MEAT, PROCESSED MEAT PRODUCTS AND READY TO EAT MEAT PRODUCTS IN SOUTH AFRICA

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Listeria monocytogenes is an important foodborne pathogen associated with serious public health and food safety problems. *L. monocytogenes* is usually susceptible to most antimicrobials. However, over the last decade, increasing reports of multidrug-resistant *L. monocytogenes* from various sources have prompted public health concerns. The objective of this study was to determine the antimicrobial resistance of *L. monocytogenes* and the genetic mechanisms that confer resistance. A total of 168 *L. monocytogenes* isolates from raw meat, meat products and ready-to-eat (RTE) meat products were characterized using classical microbiological techniques and confirmed with *L. monocytogenes* MicroSEQ™ Real-Time PCR. The antimicrobial resistance profiles of the selected isolates were determined by testing against 20 antimicrobials impregnated discs using Kirby Bauer disc diffusion method. Furthermore, the DNA was extracted from to establish the resistant genes, prophages and serotypes profiles. Here we report on the results of biochemical tests, antimicrobial resistance profiles and genetic mechanisms that confer resistance of the 168 isolates of *L. monocytogenes* obtained from meat and by-products samples. The highest resistance was observed against Nalidixic acid (n=168), Colistin sulphate (n=168) and Clindamycin (n=168) for all the isolates included for analysis. Further, 92.86% of the isolates (n=156) found to be resistant to Nitrofurantion, followed by Ceftriaxone 74.40% (n=125), Tetracycline 36.9% (n=62), Trimethoprim 35.71% (n=60), Erythromycin 27.38% (n=46) and 22.02% (n=37) against Ertapenem. The present study has shown high levels of *L. monocytogenes* antimicrobial resistance, which may pose a risk along the food value chain.

### FREQUENCY OF OCCURRENCE, AND ANTIMICROBIAL RESISTANCE PATTERNS OF ESCHERICHIA COLI O157 AND NON-O157 E. COLI ISOLATED FROM MEAT AND MEAT PRODUCTS IN SOUTH AFRICA

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*Escherichia coli* O157 and non-O157 *E. coli* are among important zoonotic foodborne pathogens due to the severity and complications that are associated with STEC-induced gastroenteritis. There has been a surge in antimicrobial resistance among *E. coli* O157 and non-O157 *E. coli*, which is a cause for concern. The aim of this study was to determine the frequency of occurrence, pulsotypes, antimicrobial resistance patterns and resistance genes among *E. coli* O157 and non-O157 *E. coli* that were recovered from meat and meat products in South Africa and 3 major ports of entry. A cross-sectional study was undertaken to analyse meat and meat products from diverse animal species (n = 2 015) for the presence of *E. coli* O157 and non-O157 *E. coli* using classical microbiological techniques and biochemical tests. In addition, *E. coli* O157 and non-O157 *E. coli* were detected directly from the samples using MicroSEQ™ Real-Time PCR for STEC
and MicroSEQ® E. coli O157:H7 Detection Kits. Thirty-four E. coli O157 and non-O157 E. coli were isolated and confirmed using classical microbiological and molecular techniques. Kirby-Bauer disc diffusion method was used for determination of antimicrobial resistance among the 34 E. coli O157 and non-O157 E. coli isolates against 10 antibiotics, namely Ampicillin, Amikacin, Amoxicillin-Clavulanic acid, Cefotaxime, Erythromycin, Gentamycin, Nalidixic acid, Oxytetracycline, Spectinomycin, and Sulphamethoxazole/Trimethoprim. The results were interpreted according to Clinical Laboratory Standards Institute guidelines. Real-Time PCR detected more positive samples (n = 74) compared to 34 isolates that could be recovered using culture. Antimicrobial susceptibility testing revealed that 28 of the 34 E. coli O157 and non-O157 E. coli isolates were resistant to at least one of the 10 tested antimicrobials. The majority of isolates (n = 19) were resistant to Erythromycin, followed by Ampicillin (n = 18), Amoxycillin-Clavulanic acid (n = 15), and Oxytetracycline (n = 12). A considerable number (n = 11) of the E. coli O157 and non-O157 E. coli were resistant to more than 3 antimicrobials. In conclusion, our findings show that the meat and meat products in some establishments in South Africa are prone to contamination by drug resistant E. coli O157 and non-O157 E. coli. This is important for highlighting the potential danger of these pathogens to policy makers in order for target-specific multifaceted approaches to be used as hurdles to curb the potential risk of foodborne infections among consumers in South Africa.

MYCOBACTERIUM TUBERCULOSIS INFECTION IN CATTLE FROM THE EASTERN CAPE PROVINCE OF SOUTH AFRICA

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Mycobacterium tuberculosis (M. tuberculosis) is the main causative agent of tuberculosis in human. In the current study, M. tuberculosis, as confirmed by polymerase chain reaction (PCR) using primers targeting several regions of difference (RD4, RD9 and RD12) on the genomes, was isolated from cattle originating from two epidemiologically unrelated farms in the Eastern Cape (E.C) Province of South Africa. Although the isolates were genotyped with variable number to tandem repeat (VNTR) typing, no detailed epidemiological investigation was carried out on the respective farms to unequivocally confirm or link humans as sources of tuberculosis transmission to cattle, a move that would have embraced the ‘One Health’ concept. In addition, strain comparison with human M. tuberculosis in the database from the E.C Province and other provinces in the country did not reveal any match. The VNTR profiles identified in the current study will be included in both the veterinary and human genotyping databases to serve as references for future epidemiological studies. Our findings however, call for urgent reinforcement of collaborative efforts between the veterinary and the public health services of the country.

THURSDAY 27 JULY 2017

SMALL ANIMAL MEDICINE

PANCREATITIS: DEMYSTIFYING DIAGNOSIS AND TREATMENT

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Pancreatitis is the most common disorder of the exocrine pancreas in dogs and cats but ante-mortem diagnosis of pancreatitis can be challenging. The currently used gold standard for the diagnosis of pancreatitis is pancreatic histopathology. Limitations of this gold standard include finding clinically insignificant pancreatic lesions in dogs and cats and the possibility of missing focal lesions in the pancreas in clinically affected dogs. The accuracy of other tests for pancreatitis is evaluated against this imperfect gold standard. The Spec cPL® and Spec IPI® (IDEXX Laboratories) is the considered the most sensitive and specific test for the diagnosis of pancreatitis in dogs and cats, respectively. An in-clinic SNAP cPL and SNAP IPI test cannot confirm a diagnosis of pancreatitis, but can be used to rule pancreatitis out. DGGR lipase is a newer pancreatic lipase test with good agreement with Spec cPL® and Spec IPI® results. A diagnosis of pancreatitis relies on exclusion of conditions with similar clinical signs and using a combination of physical examination findings, pancreatic lipase tests, diagnostic imaging and pancreatic cytology. The basic principles in treatment of acute pancreatitis include replacing intravenous fluid losses, controlling nausea (using maropitant as first-line drug), providing analgesia and providing enteral nutrition.

MY PATIENT IS ANAEMIC AND IT’S NOT BABESIA…NOW WHAT?

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Anaemia is a decrease in the erythrocyte mass in the body and one of the most commonly identified haematological abnormalities seen in veterinary practice. It is not a primary diagnosis and the underlying cause should be investigated in most cases. Confirmation of anaemia is an essential first step in the diagnostic process. The decision whether to continue with an investigation into the cause of anaemia, is determined by the severity of the anaemia and clinical presentation of the patient. Thereafter a systematic approach, starting with classifying the anaemia as regenerative or non-regenerative, can be followed to identify the causal pathomechanism. Each category
has a specific list of differentials as well as diagnostic tests to perform, which can be used to narrow down the search for the underlying cause for anaemia.

**APPROACH TO POLYURIA AND POLYDIPSIA**

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Polyuria (PU) and polydipsia (PD) are common presenting complaints in small animal practice. It is something which is not worked up methodically and often it is thought that Diabetes mellitus (DM) is the underlying problem, however there are numerous different differentials. The cause of PU/PD can usually be determined from the first examination. This includes an adequate history, physical examination as well as appropriate routine laboratory tests. An understanding of the physiology of water metabolism is essential to understand why the animal has PU/PD. This together with a systematic approach to cases will allow the clinician to determine the cause of the problem while managing patients appropriately.

**CRP AS A TEST FOR ASSESSING AND MONITORING SYSTEMIC INFLAMMATION**

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Inflammation caused by a number of disparate mechanisms, cause the release of Interleukins by leukocytes and some of these (such as IL-6) promote the release of Acute-phase proteins by the liver. One of these is C-reactive protein (CRP). The use of CRP in the detection and monitoring of inflammatory disease, in human medicine has been well established for over 30 years and many specific applications have been published.

For many years validate methods were not available for the assay of CRP in veterinary medicine (such as for dogs) and in-house developed methods were used in the earlier publications on CRP in dogs. More recently, some methods designed for use in humans were validated for canine serum CRP and very recently, a number of immunologically based methods, specific for canine serum CRP were developed. This has led to the publication of numerous articles demonstrating its clinical usefulness in certain settings. In order to derive maximum utility of the now widely available test, the author has suggested four clinical scenarios to be used as templates to guide the clinician in using this test.

- Scenario 1: Vague clinical presentation (such as anorexia) where the test is used to determine if significant inflammatory pathology is present.
- Scenario 2: Differentiating between inflammatory and non-inflammatory causes of clinically evident abnormal signs (such as differentiating inflammatory from non-inflammatory causes of lameness)
- Scenario 3: In the presence of diagnostically established inflammatory disease (such as burns), determining the degree of inflammation and setting a prognosis.
- Scenario 4: In the presence of diagnostically established inflammatory disease (such as pneumonia), determining the response to treatment.

**AN UPDATE ON POINT OF CARE TESTS FOR THE DIAGNOSIS OF CPV AND CDV IN DOGS AND FIV AND FELV IN CATS**

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Rapid point of care (POC) tests have been available to the veterinarian for decades. However, some recent interesting findings need to be noted.

The objective of this paper is to highlight the merits and limitations of some of the more popular point of care tests used in the diagnosis of Canine parvovirus (CPV), Canine distemper virus (CDV), Feline immunodeficiency virus (FIV) and Feline leukemia virus (FeLV).

The CDV and CPV semi-quantitative antibody POC tests can be used to monitor the immune status of a vaccinated dog. The tests should be done 4 weeks after the initial vaccination program to confirm a successful vaccination. The rapid antibody tests can also be used to assist in the prognosis of a CDV and CPV infection and to determine when to administer the next vaccine booster. The CDV and CPV antigen tests use faeces or conjunctiva as the preferred diagnostic sample. A recent study revealed that the Anigen POC test does not detect the vaccine within 9 days of vaccination implying that a positive POC result is not due to the vaccine.

In the case of FIV infection there is a strong antibody response following infection. The Bionote/Anigen FIV antibody POC test uses both blood and saliva as diagnostic sample. The assay is both sensitive and specific and able to distinguish an FIV infected from vaccinated uninfected cat. However not all rapid antibody tests performed the same. The Anigen/Bionote FIV antibody test was able to identify a cat
infected with FIV irrespective of whether the cat had been vaccinated or not 100% of the time as long as testing was not performed within 6 months following the primary vaccination (Westman, 2016). Saliva proved to be equally sensitive and specific to blood and may have advantages over blood in certain situations.

A recent study investigated the use of the Anigen/Bionote FeLV antigen POC test on blood and saliva samples from cats progressively, regressively and negatively infected with FeLV. The assay had a sensitivity of 57% and 54% when blood and saliva were used, respectively. Specificity was 98% and 100% for blood and saliva, respectively (Westman et al., 2017). The authors justify the use of the POC test using whole blood to test for FeLV however they recommend that all FeLV positive POC results be confirmed using a real time proviral PCR which is regarded as the gold standard for FeLV testing. Because of the lower sensitivity, cats that test negative, but that have been exposed to infected cats, should also be tested by PCR. If PCR is not available two different FeLV POC kits can be used to improve the diagnosis. However more studies need to be performed before saliva will be recommended as diagnostic sample for FeLV antigen POC testing.

The merits and limitations of the 4 rapid POC tests will be discussed with special reference to the test, the best sample to use and when PCR should be used to confirm a POC result.

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OUTBREAK OF CANINE DISTEMPER IN DOGS OWNED BY LOW-INCOME FAMILIES IN MOZAMBIQUE

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Although significant animal suffering caused by preventable diseases is frequently seen in developing countries, reports of this are scarce. This report describes avoidable animal suffering owing to a suspected canine distemper (CD) outbreak in unvaccinated dogs owned by low-income families in Mozambique that killed approximately 200 animals. Affected dogs exhibited clinical signs, and gross and microscopic lesions compatible with CD. Immunohistochemical staining confirmed the presence of canine distemper virus (CDV) in the kidney of one dog from the cohort. This brief communication again illustrates that large outbreaks of CDV in unvaccinated dogs occur and that large-scale avoidable suffering and threats to the health of dogs and wild canines continue. Mass vaccination supported by government and non-government organisations is recommended.

UNIQUE COMPOUNDED PRODUCTS APPLICABLE TO SMALL ANIMAL PRACTICE

Ockert Botha
No paper submitted

VETERINARY COMPOUNDING DEMYSTIFIED – LAWS, REGULATIONS, RULES AND QUALITY

Estelle Botha & Jacques Lubbe
No paper submitted

SMALL ANIMAL SURGERY

HOW TO DEAL WITH A BLOCKED URETER

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Ureteral obstruction can be acute or chronic in nature. Cats are most often affected but it can be seen in dogs. The most common cause is obstruction due to urolithiasis. However obstruction can be due to stenosis trauma or neoplasia. These patients often present in an azotaemic crisis due. The reason for this is that often obstruction and damage to one of the kidneys go unnoticed. The remaining kidney will hypertrophy and take over renal function. The crisis presents when the remaining kidney obstructs. Traditional surgical methods are fraught with complications and a high rate of recurrence due to stricture from fibrous tissue. The introduction of ureteral stents has dramatically increased the survival time in these cases and decreased the recurrence of urolithiasis. Stents can be combined
with traditional surgery or lithotripsy. The addition of the subcutaneous ureteral bypass system has decreased surgical time in these compromised patients and further decreased complications. However subcutaneous bypass being a new technique needs to be carefully evaluated in the long term.

**ARTIFICIAL URETHRAL SPHINCTER PLACEMENT FOR URINARY INCONTINENCE**

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Urinary incontinence is a common disorder mainly of the spayed female dog. It is generally caused by a loss of tone of the proximal third of the urethra leading to an intermittent incontinence. However it can be due to a multitude of other factors that need to be ruled out. The common term is urethral sphincter mechanism incontinence. The initial step of USMI is medical management with a-adrenergic drugs or oestrogens. If medical management fails surgical treatment is the next step. An intensive investigation should be undertaken prior to surgical treatment to rule out all other causes for the incontinence. In the past surgical management has provided poor results of around 50% return of continence. With the advent of new techniques the successes rates have increased into the 90% range. Correct patient selection is essential in the decision to correct USMI surgically and with what technique.

**SURGERY OF THE HEPATOBILIARY SYSTEM**

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Cats and dogs commonly present with conditions of the liver and biliary tract that may require surgical intervention. Techniques such as liver biopsy, partial liver lobectomy and simple exploration of the biliary tract can be easily performed in general veterinary practice. It is important to remember that the liver has many diverse functions. It is the primary organ for protein; carbohydrate and fat metabolism, it detoxifies and excretes drugs and toxins; and it is responsible for the formation of bile and coagulation factors. Because of its large functional reserve, clinical signs of liver disease may not be apparent until the disease is advanced and many metabolic abnormalities become apparent. It is extremely important to understand the pathophysiology of the underlying disease processes and to review the anatomy and specific surgical techniques before embarking on hepatobiliary surgery.

**HOW TO ENSURE THE BEST POSSIBLE OUTCOME IN INTESTINAL SURGERY**

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There are many indications for surgery of the small intestine. Surgical intervention with supportive, diagnostic or therapeutic intent is routine in both general veterinary practices and referral hospitals. Although commonly performed, outcomes for small intestinal surgery can be greatly improved if certain pre-operative considerations are taken into account and the basic principles of small intestinal surgery are followed.

**APPROACH TO THE DYSPNOEIC BRACHYCEPHALIC PATIENT**

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It is not uncommon in veterinary science that we are presented with a cyanotic dog and a frantic owner. The cause of this sudden respiratory distress can be due to Laryngeal Paralysis, Laryngeal Collapse, Tracheal collapse or a combination. These conditions are loosely grouped into the category of be Brachycephalic Syndrome (BS) or Upper Airway Obstruction Syndrome (UAOS). Our task is to recognise the condition that we see in brachycephalic dogs and to proceed swiftly to being able to stabilise them. Many of these dogs are overweight and may have concurrent heart disease or tracheal collapse. We use a combination of oxygen supplementation, corticosteroids, sedatives and cooling techniques. At a later stage, we can perform a more thorough physical exam and diagnostic techniques in order to make a diagnosis of the underlying cause. The veterinarian must decide whether medical or surgical intervention is more likely to prevent similar recurrence. Surgical intervention includes techniques to reduce the obstruction to the lumen of the upper airway. Wedge naroplasty, staphylectomy (soft palate resection), ventriculectomy (resection of everted laryngeal ventricles) and cricoarytenoid laryngoplasty are some of these techniques that will be discussed. Postoperative care involves careful monitoring and symptomatic treatment. Dogs should be in a cool environment, have oxygen supplementation when needed and supportive medical treatment. Weight restriction and exercise moderation, is vital to the Long term success of surgery.
HOW TO PERFORM AN EMERGENCY TRACHEOSTOMY
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A tracheostomy is usually performed to allow air to enter the trachea distal to an upper airway obstruction, such as trauma, anaphylaxis, neoplasia and conformational defects.1,2 In addition, this techniques has proved useful for planned airway management during surgical manipulation of the oral cavity. A tracheostomy is either temporary, when a tube is inserted, or permanent, when a stoma is created. A temporary tracheostomy is most commonly performed to provide an alternate airflow route. It may be performed either during surgery for relief of an upper airway obstruction or as an emergency procedure in a severely dyspnoeic patient requiring medical treatment.3 Temporary tracheostomies are usually maintained only for a short period of time.

CLOSURE OF LARGE SKIN WOUNDS IN COMPANION ANIMALS
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Skin represents the largest organ in the body. It is one of the most common organs that the veterinarian has to deal with on a daily basis. It is one of the most versatile organs, especially in the canine and feline patient. Skin surgery is one of the most exciting areas of surgery that enables the surgeon the chance to make a massive difference to the patient with little specialised equipment. This gives most general practitioners the chance to return the patient to normal function as quickly as possible without having to refer these cases. Techniques for closure depend on the wound, the patient and the trauma causing the wound. This will dictate how and when the wound is closed. From a simple laceration that can be closed by primary closure to the traumatic mechanical avulsion injury that needs to be treated as an open wound and then closed with multiple axial pattern flaps. These are all within reach of the general practitioner’s skill set.

PRODUCTION ANIMALS

ANTIBIOTIC RESISTANCE
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Antimicrobial resistance is one of the greatest challenges currently facing small animal veterinary medicine. During the past decade, various multidrug-resistant bacteria (MDR) have emerged and spread among dogs and cats on a worldwide basis. The major current MDR organisms of concern are methicillin-resistant Staphylococcus pseudointermedius and Escherichia coli producing extended-spectrum β-lactamase. However, these bacteria are just the tip of the iceberg because multidrug resistance has diffused in other common bacterial pathogens encountered in general practice, such as Pseudomonas aeruginosa and enterococci. Understanding why and how antimicrobial resistance develop is very important in everyday practice. Certain bacteria have intrinsic resistance for certain types of antibiotics and this should at all times be considered when planning the treatment protocol. Recent antibiogram data will also be discussed. Measures to prevent resistance should be implemented in all practices.

PREVALENCE OF METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS (MRSA) AMONG COMMERCIAL PIG HERDS IN SOUTH AFRICA
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Nasal carrier status of MRSA in pigs has been described elsewhere but is unknown in South Africa. To address concerns that exist over the zoonotic risk positive carriers pose to workers, the prevalence of methicillin resistant Staphylococcus aureus (MRSA) among twenty-five commercial pig herds in South Africa was determined. Of each herd, 18 finisher pigs’ nasal contents were sampled at the abattoir, pooled into three pools and selectively cultured to determine the presence of MRSA. A herd was classified as MRSA positive if one or more of the three pooled samples cultured positive for MRSA. Three out of the 25 herds tested positive for MRSA, equating to a 12% herd prevalence (95% CI: 2.5 – 31%) among South African commercial piggeries. The prevalence of nasal MRSA carriers amongst large commercial pig herds in South Africa was low compared to what has been reported in other parts in the world and suggests a low zoonotic MRSA risk to workers in South African commercial piggeries and abattoirs.
CRYPTOSPORIDIUM, AN UPDATE ON DIAGNOSIS, TREATMENT AND CONTROL IN SOUTH AFRICA

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Many cases of Cryptosporidium have been reported to the Faculty of Veterinary Science, Onderstepoort in recent years, in wildlife, bovines, ovine and caprine neonates. Severely affected individuals often succumb to hypovolaemic shock as a result diarrhoea-induced dehydration. Diagnosis and treatment can be frustrating. In this article, diagnostic tools and treatment options are discussed.

TECHNOLOGY AND NUTRITION: UNDERSTANDING GADGETS AND NUMBERS

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With advances in technologies, we are all surrounded by devices that should make our life easier. The agricultural sector has already started to use many of these technologies years ago. Compared to other agricultural sectors, dairy farming has lagged behind also because of a world dairy crisis. Milk prices and feed stock instability and continuous need for increases in quality from consumer’s present new challenges. However, scientific and technological knowledge have sufficiently advanced over the years to enable feeding management and husbandry practices to overcome the challenges and allow sustainability.

NUTRITION OF THE DAM DURING PREGNANCY AFFECTS FUTURE OFFSPRING PERFORMANCE

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The increased animal production due to more intensive farming and strong genetic selection, has led to the need of more fine-tuned diets for each stage of the production cycle. Lately, more attention has been payed to the specific nutrient requirements during pregnancy on the base of the recently developed concept of foetal programming. In fact, there is growing evidence that foetal programming can alter postnatal development, growth, and disease susceptibility of the offspring. In ruminants, the main “critical windows” for foetal programming have been identified. The best strategy to obtain highly productive offspring is certainly to provide adequate dam nourishment during the all pregnancy in order to meet the specific requirement of each critical window. However, when the conditions do not always allow to provide the best diet, several strategies, when applied timely, can be used to aid in preventing or compensating the negative effects induced by undernourishment of dams during pregnancy. In conclusion, taking advantage of pregnancy as the first available and possibly most influential developmental window by providing and/or reinforcing adequate nutritional and energy requirements will positively impact future offspring performance by unlocking full genetic potential.

HEIFER AND CALF NUTRITION: MUCH MORE THAN GROWTH

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For decades we have been spending efforts in making sure that we satisfy nutritional requirements of lactating animals, with, at times, ground breaking research that has changed and greatly improved the way we manage and feed dairy cows. We often talk about fine-tuning diets or precision feeding and if milk yield, milk composition, reproduction or health is not up to the genetic potentials we tend to blame or praise the nutrition. Exactly, what potentials are we talking about? We have started to realize that those are not only dictated by the DNA of the animal but they are set not only at breeding but also weeks after conception up to few days before milking. A central theme is therefore the identification of critical windows in development, during which the supply of nutrients to the whole animal, its tissues, organs and even cells plays pivotal roles in the expression of immediate and subsequent responses that affect processes involved in milking, reproduction and immune system. There are still many gaps in our knowledge, but new opportunities for developing a more holistic approach to the subject are emerging from the acceptance that, in addition to its fairly immediate effects on adult performance, nutrition at earlier stages may have consequences for the whole animal productive career. We can therefore try and do much more than just feeding the best possible ration during lactation.

REVIEW OF THE DOWNER COW SYNDROME MANAGEMENT

Chris Marufu

No paper submitted
PRACTICAL APPLICATION OF SPECIAL RADIOGRAPHIC VIEWS IN EQUINE PRACTICE

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Special radiographic views can be invaluable in making or confirming a diagnosis in equine lameness cases. Special views of the carpus include dorsal75°lateral-palmaromedial, dorsal75°medial-palmarolateral and flexed dorsoproximal-dorsodistal oblique views. Special views of the metacarpo/-tarsophalangeal joints include amongst others dorsodistal-palmaroproximal-125°, flexed dorso35°distopalmaroproximal, flexed dorsoproximal-dorsodistal, latera45°proximal-mediodistal, dorso30°proximal70°lateral-plantarodistal medial, dorso45°proximal45°lateral-plantarodistal medial and palmaroproximal-palmarodistal oblique views. The two special views for the tarsus are a flexed lateromedial and a flexed dorsoplantar view of the calcaneus. The only special view obtained of the stifles joint is the flexed cranioproximal-craniodistal oblique view. These views are used to evaluate structures and areas of the articular surface that can’t be fully appreciated in the standard radiographic views and aids in providing a diagnosis, prognosis and appropriate treatment plan.

CURRENT DEWORMING PROTOCOLS FOR HORSES DENTISTRY FOR DUMMIES

Ingrid Cilliers

No paper submitted

CURRENT SURGICAL TECHNIQUES FOR REMOVING FRACTURED MOLARS

Ingrid Cilliers

No paper submitted

CURRENT THERAPIES AVAILABLE FOR JOINTS / TENDONS

Ingrid Cilliers

No paper submitted

ENHANCING WOUND HEALING IN HORSE – PART 1 & PART 2

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The horse has a marked healing response to injury with early production of excessive granulation tissue, which is called “proud flesh” when it is elevated above the level of the skin. Proud flesh interferes with wound contraction and delays healing. Differences have been identified between the healing of limb and body wounds: epithelialisation and wound contraction occur slower, and contraction occurs...
to a lesser extent on the limbs. “Proud flesh” occurs predominantly in wounds below the hock and tarsus. The differences in healing are related to increased concentrations of the pro-fibrotic cytokine TGFβ-1 (Transforming Growth Factor Beta -1) in limb wounds and in excessive granulation tissue, and lower concentrations of the anti-fibrotic cytokine TGFβ-3 in excessive granulation tissue. Bandages applied to limb wounds also commonly cause “proud flesh”. Wound healing occurs different in ponies with more production of TGFβ-1 and a rapid decay thereof. The result is a stronger inflammatory response in ponies with a resultant reduced granulation and increased contraction in the wounds. “Proud flesh” occurs rarely in ponies.

There is no question that a warm, moist environment enhances wound healing. Wound exudate is rich in healing properties including white blood cells, growth factors, metalloproteinase, and cytokines. Leukocyte function is enhanced and scar formation is minimised in a moist environment. Autolytic debridement of necrotic tissue is rapid in a moist environment. A balance in fluid production and removal must be maintained under an occlusive dressing to minimise tissue maceration. Bacterial colonisation will occur under an occlusive dressing, so preventive measures must be taken in minimising the load. It has been demonstrated that wound occlusion nearly doubles the rate of re-epithelialisation. Full-thickness wounds maintained in a moist environment, epithelialize in less than 15 days, whereas similar wounds exposed to air took twice as long. Finally, wounds exposed to air are more inflamed, painful, pruritic and maintain a thicker crust that delays the healing process.

Today there are literally thousands of wound care products on the market. Few have been looked at discretely in the horse. Although many equine practitioners are using some or all of the basic principles of moist wound healing, a plethora of new medications have evolved around the subject. Many of the newer dressings are designed to create a moist wound-healing environment, which allows the wound fluids and growth factors to remain in contact with the wound, thus promoting autolytic debridement and accelerating wound healing. Presently it appears that no single material can produce the optimum microenvironment for all wounds or for all the stages of the wound healing process. Great differences exist as to the most appropriate method of managing wounds. This is because there is little scientific evidence to support the selection of one treatment over another. Recommendations are made based mainly on clinical experience, extrapolation from other species or research, or based on an educated speculation. It is very important to remember that although there are numerous products available for topical use, almost none have solid scientific support of their efficacy in the horse using controlled studies. These products may be efficacious but they do not have the evidence to back up their frequent claims.

The report provides a review of currently available dressings, their physical characteristics and describes their best use as it relates to the condition of the wound (clean, contaminated or infected) and the phases of wound healing.

NURSES

IT WASN’T ME! ACCEPTING ACCOUNTABILITY

Desiré Rees, DJ, BA Psych & Comm
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As we develop and grow in our Veterinary Practices, one of the key areas to focus on is our important part of a bigger team. Problems and difficulties crop up daily and it would seem easier to avoid and dodge the responsibilities placed before us.

To fully understand the importance of developing accountability, we need to explore the behaviours that either leave us empowered or the powerless victim. Whether we are a product of our environment or we take charge of the environment around us.

We will start at the very beginning of the ownership process moving to why being an accountable member of our team would have any benefit. This is a talk designed to successfully take nurses to the next level of their professional and personal development.

BREAKING THE CYCLE OF BURNOUT

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Burn Out is often misunderstood and perceived to be something it is not. Burn Out has many faces ranging from emotional exhaustion to depersonalization of others, even a loss of self respect and lowered self-esteem.

Professionals often engage in self-talk that compounds and accelerates situations that were previously achievable to ‘out of control’. Exploring various contributors to Burn Out can help slow or eliminate the effects both emotionally and physically. With Burnout relating more to the loss of the desire to work and not necessarily to trauma, the differentiation needs to be made between Burn Out and Compassion Fatigue.

The causes, symptoms, red flags and myths of Compassion Fatigue will be discussed along with the ever presence of Depression and its contributions to Compassion Fatigue and Burn Out. The mystery of Work Life Balance in practices is revealed along with strategies to create a work environment and lifestyle that is healthy and thriving.
#SUPERBUGSMUSTFALL ANTIMICROBIAL RESISTANCE

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Veterinary hospital acquired infections are a matter of fact, with an incidence of 4-9% (Mielke, 2010), compared to a human level of 5-10% (Burke, 2003). Hospitals are occupied by sick patients. Nosocomial infection outbreaks, with differing aetiologies have been documented, a significant percentage of which have been zoonotic infections (Milton et al 2015). A nosocomial (hospital acquired), infections are contracted in a hospital environment, arising between 48 hours following admission, up until 30 days following discharge. Common nosocomial infections in the veterinary hospital include urinary tract infections, surgical wound infections and infectious diarrhoea. Historically efforts focused on the control of infectious diseases such as canine parvovirus, more recently it is the control of infectious zoonotic diseases such as MRSA, C. difficile and MRSP that have taken precedent. It is accepted that such infections are endemic within veterinary hospitals. The longer a patient is hospitalised, the more invasive the procedure (e.g. i/v or urinary catheters), the greater the risk.

With the now necessary reduction in the use of prophylactic antibiosis for hospitalised surgical and medical cases, all practices must re-harness the old adage ‘Cleanliness is next to Godliness’, returning to the days of Florence Nightingale, when cleanliness and infection control was taken very seriously in all hospitals, knowing that a lack of infection control was a matter of life and death.

This presentation will tackle practical aspects of cleaning, disinfection, fomite identification and most importantly measuring the efficiency of biosecurity management using Adenine Triphosphate testing to verify cleanliness.

REFERENCES

PEDIATRIC VS. GERIATRIC ANAESTHESIA

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The frequency with which we are asked to anaesthetize the very young or very old is increasing in veterinary clinical practice. This is a result of increased interest in early spaying and neutering, veterinary care becoming more available, better health care and an increased population of aged pets.

Pediatric dogs and cats are considered to be less than 12 weeks of age. Defining the geriatric period is more difficult because of species, breed and individual variation in life expectancy. Geriatric patients are those considered to have attained 75% of their expected life span.

Pediatric patients gradually develop their physiological responses and organ function to resemble the adult animal. The majority of circulatory, ventilatory, thermoregulation, hepatic and renal functions are well developed but not yet to the capacity of an adult. Aging is an all-encompassing multifactorial process. In the geriatric patient this results in a decreased capacity for adaptation and produces a decrease in functional reserve of all the organ systems. Aging is not a disease in itself but may be accompanied by the development of many age-related diseases. The aging process varies from individual to individual and from one organ system to another within a given patient.

MINIMISING ANAESTHETIC RISKS

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The purpose of anaesthesia is to provide reversible unconsciousness, amnesia, analgesia and immobility for invasive procedures. The administration of all anaesthetic drugs, the recumbent and immobile state compromise patient homeostasis. Anaesthetic complications and crises are unpredictable and tend to be rapid as well as devastating in nature. The purpose of monitoring during the peri-anaesthetic period is to maximize safety.

The main areas of minimizing anaesthetic complications can be divided into 3 categories. They include patient evaluation, peri-operative checks and procedure factors. Patient evaluation includes physical examination and medical history, which determines which laboratory, and diagnostic procedures are needed. Peri-operative checks include all the equipment and drugs needed for the anaesthetic management for each case. Procedure factors include the influence the procedure performed will have on the homeostasis and clinical parameters of the patient.
Creating Fabulous FURKids – Setting Young Animals up for Success

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Healthy and well-behaved pets tend to be more valued by their owners. Behaviour, just the same as physical health, is influenced by an interplay of genetics and environment. Many behavioural disorders, just like physical diseases, can be prevented at an early age. The concept of sensitive periods, which requires that puppies and kittens are exposed to certain environmental stimuli by certain ages to ensure optimal behavioural development, is well-known. Similarly, the importance of early learning in puppies and kittens is a well-established factor in normal developmental behaviour. The focus on early development should be parallel to the emphasis on healthy nutrition, disease prevention and parasite control to ensure a holistic approach to puppy and kitten well-being. The veterinary practice, and in particular the veterinary nurse, is well-situated to empower pet owners to ensure that they give their young pets the best possible chance to develop normally, and to recognise and deal with potential problems early on. This presentation focuses on the behavioural management of puppies and kittens.

The Ticking Time Bomb! Tools for Time Management

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There is never enough time in the day to do the things we need to do and so often it leaves us feeling defeated and hopeless in our practices. Time management is a skill that if exercised, can empower and transform the productivity and work ethos of any team.

Understanding the difference between Urgent and Important tasks can streamline our action process. We will go through the Six Steps to Time Management and discuss how implementing these in our practices can benefit us, our team and our patients.

Procrastination is a huge obstacle to productivity in any setting. We will explore why we are drawn to procrastinating and how to avoid the lure of falling into the same time-sucking behaviours that eat away at our motivation and productivity. And just to make sure we leave skilled and motivated for any task ahead – we will learn how to confidently ‘Eat that Frog’!

Collection and Packaging of Diagnostic Samples

Dr. Laura Lopez1 and Dr. Didi Janse van Rensburg2
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There are several diagnostic modalities at our disposal to obtain a final diagnosis. However, these modalities are very dependent on proper sample collection. The methods differ greatly for the different diagnostic modalities. The presentation will mainly focus on sample collection during a post mortem for various diagnostic modalities and how these samples should be preserved. Special focus will be placed on controlled diseases such as rabies, brucellosis, bovine tuberculosis and which samples as well as how samples should be collected when there are no macro pathology lesions. The packaging of diagnostic samples is as important as the correct diagnostic sample for each animal disease. All samples should be consider potentially infectious and should be packed accordingly. All diagnostic samples must be packed in triple layer system and meet relevant Packing Instructions.

Mainly: leak-proof primary receptacle, leak-proof secondary receptacle and outer packaging. Submission form must be included and the form should be in a sealed bag to protect from any leakage. Temperature control should be consider and the inclusion of frozen ice packs is recommended if necessary. Labelling of the package is also important to be delivered to the correct address.

Zoonotic Disease Awareness of One Health Stakeholders, Gauteng, 2016

Krpasha Govindasamy1, Andre Coetzer, Terence Scott, Louwtjie Snyman, Jumari Steyn, Carien van Loggerenberg, Ayesha Hassim, Francis Kolo, Banenat B Dogonyaro, Nomsa Letsoala, Wanda Makotter, Marietjie Venter, Ana Tsotsetsi, Anita Michell, Henriette van Heerden

South Africa is a state party of the World Health Organization (WHO). The International Health Regulations (IHR) of the WHO came into force on 15 June 2007. All state parties were required to build core capacity to detect and respond to zoonotic pathogens by 2012. The IHR (2005) stresses the promotion of inter-sectorial cooperation between human and animal health sectors for zoonotic disease detection, prevention and control. Establishing mechanisms for detecting and responding to zoonoses and potential zoonoses is set down as indicator 17 of the IHR (2005) selected for reporting to the World Health Assembly.
A One Health Approach has been adopted in South Africa to meet the requirements of the IHR. One Health is the collaborative effort of multiple health science professions, together with their related disciplines and institutions – working locally, nationally, and globally – to attain optimal health for people, domestic animals, wildlife, plants, and our environment. The South African government plays a crucial role in this process by controlling and managing selected zoonotic diseases of global, and national public health importance.

An essential component of determining the capacity to detect and respond to zoonotic diseases of public health importance is to determine the baseline awareness of stakeholders who work within their disciplines to control these zoonotic diseases.

The aim of this study was to determine the existing critical knowledge of a multidisciplinary group of zoonotic disease stakeholders on 8 selected zoonotic diseases, (Rabies, Brucellosis, Anthrax, Leptospirosis, Tuberculosis, Rift Valley Fever, West Nile Virus and Cysticercosis) and to re-evaluate the knowledge after a presentation of awareness material on the 8 diseases.

**BRUCELLA MELITENSI S – COMBATTING AN OUTBREAK IN THE FIELD**

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*Brucella melitensis* is a serious zoonosis not often diagnosed in South Africa. Previous cases were only diagnosed when people contracted this disease. After two people were diagnosed with brucellosis on a farm in Beaufort West in the Western Cape, brucellosis was diagnosed using complement fixation (CFT) in the extensive Boer goat herd on the farm. Subsequently positive CFT results were found in the cattle as well as sheep on this farm. The two seriously ill persons were treated successfully in a George hospital. At the same time, another person that suddenly became lame in Beaufort West was diagnosed as infected with *B. melitensis* using bacterial culture of bone marrow, but no link could be found to the positive farm.

The farm is 8000 ha of Karoo mixed veld and very extensive with a grazing capacity of 36 ha/LSU. Infrastructure such as fences and kraals are very bad, which makes working conditions very difficult. Identification of animals was also not up to standard. The 1100 Boer goats, 500 mixed sheep and 400 mixed breed cattle are farmed extensively and accurate stock figures were impossible to determine.

Back tracing to find the origin of this outbreak was done but so far no answers could be found.

Initially a test and slaughter policy was implemented but this was later changed to a total slaughter out policy due to problems described above. In the end all the sheep and goats were slaughtered under official supervision. The cattle were tested and positive animals slaughtered. After almost two years of testing and many other logistical difficulties the quarantine was lifted with certain conditions. This presentation describes these problems and a possible way to prevent these in the future. A national survey for *B. melitensis* is also of utmost importance for further eradication strategies.

**INDIVIDUAL AND HERD SERO-PREVALENCE OF BOVINE BRUCELLOSIS IN IN NORTH WEST PROVINCE 2009-2013**

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Bovine brucellosis is primarily a reproductive disease characterised by abortion, still births, weak calves, infertility and placentalitis in cows; with epididymitis and orchitis in bulls. It is also an important occupational and consumer related zoonosis, causing fever, joint pains, urogenital symptoms and chronic disability. The OIE recommends routine active sero-surveillance for disease control in domestic cattle. In the literature there is often confusion about the actual sero-prevalence of brucellosis in cattle, as different researchers compare individual animal and herd prevalence, often in the same publication. A herd is considered positive if only one positive case is confirmed. Analysis of retrospective sero-surveillance data from 46 762 cows in North West Province showed a significant difference (p<0.01) between individual and herd prevalence in beef, dairy and communal farming systems. Over a five year period (2009-2013) the individual prevalence in communal cattle was 5.19%, while herd prevalence was 38.8%. In commercial beef herds individual prevalence was 3.02% while herd prevalence was 32.1%. For dairy cows, individual prevalence was 0.31% with a herd prevalence of 17.9%. It appears from the literature that individual prevalence of brucellosis may be more closely linked to the risk of brucellosis in humans. It is therefore critical to establish whether published research findings refer to individual or herd prevalence when estimating the risk of zoonotic transmission of bovine brucellosis. It was concluded that it may also be advisable to always use individual sero-prevalence when comparing outbreaks in different areas or countries.

**RISK FACTORS FOR BOVINE BRUCELLOSIS IN KWAZULU-NATAL**

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Despite the endemnicity of bovine brucellosis in South Africa and its zoonotic impact, little research has been done on its risk factors, control, vaccination levels and the effect of the disease on human health. Recently there has been an increase in bovine brucellosis in KwaZulu-Natal with little difference in commercial farms and those utilizing the dip tanks.
A case control study was conducted investigating risk factors on bovine brucellosis in both commercial and communal farms during the period October 2013 to October 2015. 177 farmers were interviewed, 102 of which were controls and 75 cases. A case farm is defined as a farm where there are two or more serologically positive cattle in herd on confirmatory CFT, but where vaccination was unlikely to be the cause. A control farm was defined as a herd within the same State Veterinary area, with no clinical symptoms, of bovine brucellosis and where all cattle tested negative within 6months of a case herd. The study was conducted in the Northern KwaZulu-Natal. Animal Health Technicians conducted interviews with farmers.

Risk factors were assessed, such as the size of the herd, vaccination status, use of AI or bull, presence of multiple farms by the same farmer, presence of other farm animals in the farm, whether the farm is a communal or commercial farm, government sponsored or self-owned, cattle were bought from neighbouring farm or afar, from auction sales or speculation, calving practise used, any history of abortion and farm management practices used in the farm or dip tank. Univariate analysis and multivariate logistic regression were used to calculate the Odds Ratio (OR) and their 95% confidence intervals.

We will present results from the project which will help us determine the risk factors that are driving bovine brucellosis in farms in KwaZulu-Natal at the commercial and dip tank level. The results will be used to influence the stakeholders and the policy makers to redefine the strategy for the management and control of bovine brucellosis.

SEROLOGICAL ANALYSIS OF BRUCELLA SERUM AND MILK SAMPLES WITH IN-HOUSE IELISA CONVERTED ON LUMINEX XMAP TECHNOLOGY

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Brucellosis is a zoonotic disease caused by Brucella species that affects livestock and humans. Bovine brucellosis is a serious problem in South Africa and despite it being a state controlled disease; the prevalence is increasing in most provinces primarily because diagnosis of the disease is challenging. This could be due to various factors namely; (i) the disease incubation period varies between animals and in calves, infection can only be detected when they reach maturity, (ii) diagnosis depends on serological surveillance, (iii) cross reaction of serological test with other closely related bacteria, (iv) culturing, the golden standard has low sensitivity and (v) no pathognomonic symptoms in livestock. The main aim of our study was to establish and convert an in-house iELISA for detection of Brucella specific antibody in serum to a liquid bead array, using the Luminex xMAP technology platform, to improve diagnostic sensitivity and specificity. The assay was developed using Brucella abortus str.99 antigen and protein A/G as the conjugate. Serum and milk samples collected from the cattle farms in Gauteng province were respectively tested with rose Bengal test, commercial iELISA and the milk ring test as well as with the in-house developed iELISA. There was good correlation between the established tests and the in-house iELISA. The conversion of the assay to Luminex xMAP Technology is currently in progress and the recorded data will be used to assist in the validation of the Luminex xMAP assay.

A COMPREHENSIVE NEXT-GENERATION SEQUENCING STRATEGY FOR WHOLE GENOME ANALYSIS OF SAT1 AND SAT2 FOOT-AND-MOUTH DISEASE VIRUSES

van der Merwe, D.1,2, van Heerden, J.2, Heath, L.2, Fosgate, G.T.' & Blignaut, B1,2

Bacillus anthracis is a soil borne, Gram positive endospore forming bacteria and the causative agent of anthrax. It is endemic in Pafuri, Kruger National Park in South Africa. The bacterium is amplified in a wild ungulate host which then becomes a source of infection to the next host upon its death. While outbreaks have been documented in the area for over 30 years, the exact mechanisms involving the inoculum in the environment and impact on the life cycle of Bacillus anthracis at a carcass site.
**ISOLATION AND WHOLE GENOME ANALYSIS OF A LYTIC BACTERIOPHAGE INFECTED BACILLUS ANTHRACIS ISOLATE FROM PAFURI, SOUTH AFRICA.**

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**Bacillus anthracis** is a soil borne, Gram positive endospore forming bacteria and the causative agent of anthrax. It is endemic in Pafuri, Kruger National Park in South Africa. The bacterium is amplified in a wild ungulate host which then becomes a source of infection to the next host upon its death. While outbreaks have been documented in the area for over 30 years, the exact mechanisms involving the onset (index case) and termination of an outbreak are poorly understood due, in part, to a paucity of information about the soil based component of the bacterium’s lifecycle. In this study we present an aspect of this in the form of a unique isolation of an environmental dsDNA Myoviridae bacteriophage from a *B. anthracis* infected wildebeest carcass. The 154,012 bp aggressively lytic bacteriophage hampered the isolation of *B. anthracis* from samples collected at the carcass site. Whole genome sequencing was employed to determine the relationship between the bacteria isolated on site and the bacteriophage dubbed phage Crookii. The bacterium contained the usual 4 *B. anthracis* prophages described previously, but did not contain any functional temperate phages, although remnants of another bacteriophage was collected from the unmapped reads during sequence analysis. This indicates possible multiple phage infection events of the bacterial strain over time. The isolates also did not demonstrate a trend toward developing phage resistance thus making the replicating bacterium continually available to lysis by phage Crookii. As such, this phage has potential applications in phage therapy and as an environmental disinfection agent. The unusual isolation of this bacteriophage also demonstrates the phage’s role in decreasing the inoculum in the environment and impact on the life cycle of *B. anthracis* at a carcass site.

**A COMPREHENSIVE NEXT-GENERATION SEQUENCING STRATEGY FOR WHOLE GENOME ANALYSIS OF SAT1 AND SAT2 FOOT-AND-MOUTH DISEASE VIRUSES**

van der Merwe, D.\(^1\)\(^2\), van Heerden, J.\(^1\), Heath, L.\(^1\), Fosgate, G.T.\(^1\) \& Blignaut, B.\(^1\)\(^2\)

*Bacillus anthracis* is a soil borne, Gram positive endospore forming bacteria and the causative agent of anthrax. It is endemic in Pafuri, Kruger National Park in South Africa. The bacterium is amplified in a wild ungulate host which then becomes a source of infection to the next host upon its death. While outbreaks have been documented in the area for over 30 years, the exact mechanisms involving the onset (index case) and termination of an outbreak are poorly understood due, in part, to a paucity of information about the soil based component of the bacterium’s lifecycle. In this study we present an aspect of this in the form of a unique isolation of an environmental dsDNA Myoviridae bacteriophage from a *B. anthracis* infected wildebeest carcass. The 154,012 bp aggressively lytic bacteriophage hampered the isolation of *B. anthracis* from samples collected at the carcass site. Whole genome sequencing was employed to determine the relationship between the bacteria isolated on site and the bacteriophage dubbed phage Crookii. The bacterium contained the usual 4 *B. anthracis* prophages described previously, but did not contain any functional temperate phages, although remnants of another bacteriophage was collected from the unmapped reads during sequence analysis. This indicates possible multiple phage infection events of the bacterial strain over time. The isolates also did not demonstrate a trend toward developing phage resistance thus making the replicating bacterium continually available to lysis by phage Crookii. As such, this phage has potential applications in phage therapy and as an environmental disinfection agent. The unusual isolation of this bacteriophage also demonstrates the phage’s role in decreasing the inoculum in the environment and impact on the life cycle of *B. anthracis* at a carcass site.

**COMPARING IMMUNOGENICITY OF NON-LIVING ANTHRAX VACCINE CANDIDATES IN COMBINATION WITH SIMULTANEOUS ANTIBIOTIC TREATMENT IN GOATS AND USING PASSIVE MOUSE PROTECTION MODEL**

H van Heerden,\(^1\) OC Ndumnego,\(^1\) S Koehler,\(^2\) F. Buyuk,\(^3\) O. Celebi,\(^3\) O. Ottu,\(^3\) M. Doganay,\(^3\) M. Sahin,\(^3\) JE Crafford,\(^1\) W Beyer\(^2\)

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\(^3\)Department of Microbiology, Faculty of Veterinary Medicine, Kafkas University Kars, Turkey

Potential advantages of non-living anthrax vaccines include the simultaneous use of antibiotics with the vaccine for the prophylactic treatment of valuable livestock and endangered wildlife during anthrax outbreaks. However the development and testing of new veterinary vaccines in target animals is increasingly difficult due to ethical and regulatory constraints. These problems are accentuated when testing vaccines against the highly lethal and fulminant anthrax due to high level bio-containment requirements. Little information exists on alternative methods of testing correlates of protection for new vaccine candidates in target animals. In this study we assessed the immunogenicity of subunit vaccine antigens, either in combination with or without antibiotics, and compared these to the live spore Sterne vaccine in goats. We also compared an in vivo passive mouse protection model to live target animal challenge to assess the protective efficacy of anthrax vaccines in goats.

The vaccine antigens comprised of recombinant protective antigen (rPA), spore-specific bacillus collagen-like antigen (rBoLA) and formaldehyde inactivated spores (FIS). Vaccine candidates were administered in different combinations to groups of 5 (for *in vivo* mouse challenge) or 10 (for direct lethal challenge) goats. Immunogenicity in the goats was assessed by measuring specific antibody responses to the homologous antigens by ELISA and toxin neutralisation assay (TNA). The protective efficacy of these vaccines was evaluated in A/J...
mice after passive transfer of immune goat serum followed by challenge with a lethal dose of Sterne vaccine spores or by challenge of vaccinated goats with a lethal dose of anthrax spores. For the antibiotic treatment experiment two control groups were vaccinated twice with the Sterne live spore vaccine with or without Penicillin G (Pen G).

Goats receiving a combination of rPA, rBclA and FIS yielded the highest ELISA antibody and TNA titres and protected 73% of passively immunized mice and 80% of directly challenged goats 14 days post-challenge. Sera from goats vaccinated with rPA and rBclA alone protected 68% of challenged mice, while 50% of goats survived lethal challenge. In conclusion, the passive mouse protection assay proved to be a reliable correlate for protection and can help to reduce animal numbers in future challenge experiments.

There was no significant difference in the antibody responses between goats that received non-living vaccine candidates with or without Pen G treatment. Furthermore, comparing the immunogenicity between these groups (Pen G treated or untreated) and the twice-Sterne vaccinated goats revealed equivalent development of titres, after the second vaccination. The control group vaccinated with Sterne vaccine and simultaneously treated with Pen G blocked the development of antibody titres in some of the treated animals. In conclusion, the current data indicate promising potential for further development of non-living anthrax vaccines in ruminants.

**CLINICAL EXPRESSION OF AFRICAN HORSE SICKNESS IN SOUTH AFRICAN HORSES**

African horse sickness (AHS), a disease of equids caused by the AHS virus (AHSV) (*Orbivirus: Reoviridae*), is a concern for equine-linked socio-economic groups, with mortality of up to 90% in afflicted horses. AHS occurs in peracute, subacute, mixed or mild infectious forms. Differential AHSV tropism for cardiac or pulmonary cells is suggested to cause the clinical variation. Clinical signs also vary with virus-dependent (dose, strain virulence, etc.) and host-dependent (breed, immune status, age, etc.) factors, but symptoms and lesions are thought to be pathognomonic to AHS, with differing mortality rates for each form. Despite the theory of clinically identifiable AHS, there are symptomatically similar viruses that are often mistaken for AHS or *vice versa*, most particularly Equine encephalitis (EE) with a seropositivity ranging between 53-100% in South African horses. Coinfection expression is unknown and a link between external symptomology and mortality or viral load has yet to be determined for AHS.

Suspected clinical cases of AHS were monitored through three outbreak seasons in South Africa. Virus identification and viral load estimation were determined through RT-PCR with serotype determination where possible. Intricate symptom tracking was performed throughout externally visible viraeemia until recovery or death. Relationships between symptomatology and virus-dependent factors were investigated.

The frequent recording of fever, subcutaneous oedema of the supraorbital fossa and/or head, lassitude and recumbence, inappetance, pulmonary oedema causing discharge from the mouth and/or nose, dyspnoea, and sweating suggest AHS-specific symptomatology. Shared relationships were witnessed among symptoms, but clinical case symptomology could not discern orbiviral infection or AHS form. This is further evidence of continual misdiagnosis of orbiviral infection in the country. Symptomology was unsuccessful for the determination of viral load in the absence of further diagnostic tests or autopsy, and did not aid in predicting mortality. A confounding orbivirus, EEV, appears to alter expression of AHS, leading to increased mortality during coinfection. If this virus has such effects, the implementation of a vaccine against it may be necessary to lower mortality during coinfection.

**A FIELD INVESTIGATION OF THE AFRICAN HORSE SICKNESS OUTBREAK IN THE CONTROLLED AREA OF SOUTH AFRICA IN 2016**


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An outbreak of African horse sickness (AHS) type 1 occurred within the South African AHS surveillance zone during April and May 2016 with control measures finally being lifted on 13 June 2016. Twenty-one cases of AHS were detected through both active and passive surveillance. This is relatively few compared to case totals in the same region (and of the same AHS type) in previous outbreaks in 2004, 2011 and 2014. The affected proportion of horses on affected farms was 0.07 (95% CI 0.04, 0.11). Seasonal weather conditions were conducive to high midge activity immediately prior to the outbreak but, with winter approaching, midge numbers decreased rapidly as the outbreak progressed. The spread of cases was localised with 18 occurring within 8 km of the index property. The other three cases occurred on two properties up to 21 km from the index property and wind data showed that these could plausibly have resulted from wind dispersion of infected mides, although secondary seeding of the outbreak in these locations was not evident. Control measures included farm level control using insect repellants and stabilting and official implementation of a containment zone with movement restrictions for the duration of the outbreak. Outbreaks in the AHS control zones have a major impact on the direct export of live horses from South Africa to the European Union, its primary market. This outbreak will result in at least another two-year embargo on this form of export. Detailed peer-reviewed reports of field outbreaks assist field and animal health control officials by providing epidemiologic information and support the use of actual field data for AHS and other arboviral risk and disease modelling.
**THE DESIGN AND FIELD IMPLEMENTATION OF A DIGITAL IDENTIFICATION SYSTEM FOR HORSES**

**Authors:** Scholtz, M., Guthrie, A.J. & Page, P.C.
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Horse identification functions to establish ownership, pedigree, vaccination and health status of a horse and to prevent substitution at sales and competitive events. It aids in movement control, the control of infectious diseases and creates traceability. As trade and transport of horses increases internationally, so the need to accurately identify horses becomes more critical. An identification document (ID) is a reliable and easy method of identifying horses. However, the current paper based identification document system has several limitations. Paper systems are laborious, time consuming, prone to inaccuracies and are not updateable. They do not allow for automatic data capture and do not lend themselves to international standardisation of identification. A digital system would overcome many of these limitations. Our objective was to design and implement a digital identification system for horses for use by the National Horseracing Authority of Southern Africa (NHA).

An Android app and website were developed. Using this system, sire and dam information are pulled from the database and added to the horse’s ID. The diagram and accompanying description of the horse are captured using the app. Descriptive fields are prepopulated to ensure accuracy and aid efficiency. Microchip numbers are imported and DNA sample information linked to the ID. Information captured through this app is automatically uploaded to the database. Once verified by authorised persons, the required output for a passport is generated. This ID can be updated at any time by authorised persons and it has an audit trail that details every change made. Collected data are stored as objects in the database and are thus searchable. One would therefore be able to search for specific horses based on identification markings or descriptions, something which is currently very difficult. In future, standardised descriptions would be provided automatically based on the markings drawn on the app. Standardised descriptions would allow the descriptions to be available in multiple languages and thus these horse IDs would be translatable. This standardised description feature would also assist with standardisation of identification internationally. Standardised animal identification systems are essential for tracking animals transported internationally. Alpha and beta testing have shown that the system is simple to use in the field and that data integrity is good. The output fulfils the requirements of the NHA.

In conclusion, this system results in improved efficiency and accuracy of the horse identification process. Real time updates to databases mean improved traceability. While it has been developed for the NHA, the potential exists for it to be used for any equine breed society or registering authority in the world.
SASVEPM POSTER PRESENTATIONS

SEROPREVALENCE OF LEPTOSPIROSIS FROM ABATTOIRS SLAUGHTERED ANIMALS IN GAUTENG PROVINCE, SOUTH AFRICA
Banenat Bajehson Dogonyaro

RETROSPECTIVE DATA ANALYSIS ON SALMONELLA SEROTYPES IN ANIMALS AND ANIMAL PRODUCTS IN SOUTH AFRICA FROM 2007 TO 2014
Awoke Gelaw

MYCOBACTERIUM TUBERCULOSIS INFECTION IN CATTLE FROM THE EASTERN CAPE PROVINCE OF SOUTH AFRICA
Tiny Hlokwe

PREVALENCE, SEROTYPES AND VIRULENCE CHARACTERISTICS OF SHIGA TOXIN-PRODUCING ESCHERICHIA COLI (STEC) FROM COW-CALF OPERATIONS IN THE GAUTENG AND NORTH WEST PROVINCES OF SOUTH AFRICA
Musafiri Karama

SERO-PREVALENCE OF BRUCELLOSIS IN SLAUGHTER ANIMALS IN GAUTENG PROVINCE ABATTOIRS, SOUTH AFRICA AND ASSESSMENT OF RISK FACTORS POSED TO ABATTOIR WORKERS
Francis Kolo

PREVALENCE AND CHARACTERISATION OF SHIGA TOXIN-PRODUCING ESCHERICHIA COLI IN BEEF CARCASSES AND BEEF PRODUCTS IN GAUTENG PROVINCE
Libby Onyeka

DEVELOPMENT OF REAL TIME PCR ASSAYS TO IMPROVE THE ACCURACY OF BOVINE AND PORCINE CYSTICERCOSIS DIAGNOSIS
Ana Mbokeleng Tspotetsi-Khambule
SHOW GUIDE

ANAESTHETIC SUPPLIES — STAND 39

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AXIM — STAND 45

Company name: Africa X-Ray Industrial and Medical (Pty) Ltd (AXIM)
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Africa X-Ray Industrial and Medical (AXIM) is one of the leading distributors of medical imaging equipment in South Africa. Since AXIM’s formation in 1998, we have been the sole distributor for several high end imaging products including Hitachi Aloka and Shimadzu X-ray. Since our acquisition of Carestream in 2015, we have expanded our reach even further in the veterinary industry. We are committed to being the supplier of choice in providing superior product, outstanding service and expert technical support to the private and public health care and veterinary markets in South Africa.

BAYER ANIMAL HEALTH — STAND 1, 2, 3

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BOEHRINGER-INGELHEIM — STAND 27, 28, 29
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Merial and Boehringer Ingelheim Animal Health joined forces on 1st January 2017, becoming the number 2 global player in Animal Health. Our complementary portfolios make us the global leader in parasiticides and vaccines, and the leader within the pets, swine and equine sectors. We will continue to develop targeted therapies that help pets live longer and healthier lives. Together we can provide comprehensive prevention programs for livestock, contributing to safe meat supply. Monitoring, diagnosing and tailoring solutions is where science is leading us. We will be at the forefront of this development. This is why we invest 10% of our net sales into R&D.

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F10® is the registered trade mark for a range of high performance infection control and animal treatment products developed and manufactured by Health and Hygiene (Pty) Ltd, a company formed in 1994 and based in Johannesburg, South Africa. The product range is manufactured in a modern facility that holds a GMP (Good Manufacturing Practice) license. This license is issued by the Australian Pesticides and Veterinary Medicines Authority and accepted by the VMD in the UK, the EPA & FDA in the USA as well as many other regulatory authorities. The core value of our product development policy has always been that there can be no compromise in terms of safety, both to the animal and the product user. Yet another core value is integrity, i.e. we can substantiate all claims we make for our products from highly credible independent studies and references.

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HILL’S PET NUTRITION SOUTH AFRICA (PTY) LTD — STAND 21, 22

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IDEXX LABORATORIES (PTY) LTD — STAND 44

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At IDEXX, our purpose is to be a great company that creates exceptional long-term value for our customers, employees, and shareholders by enhancing the health and well-being of pets, people, and livestock.

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IDEXX Small Animal Health in South Africa provides diagnostic products and services to veterinary practices, including state-of-the-art pet-side tests and bench-top laboratory systems, as well as a local reference laboratory based in Kyalami.

We anticipate and discover the unmet needs of our customers, and we provide simple, intuitive products and services with the highest quality and the greatest customer benefit.
Every dog should enjoy a life like the canine legends of yesterday – filled with fun and adventure. Take Jock, the fearless Staffordshire bull terrier that accompanied Sir Percy Fitzpatrick on an epic journey through the heart of the bushveld during the 1880s. Their heroic escapades are the stuff legends are made of. At JOCK, we’re motivated by real-life dogs like Jock who show the world that greatness sometimes runs on four legs.

JOCK Dog Food manufactures a full line of nutritious, scientifically formulated dog food. Using only quality ingredients, our veterinarian-researched food is delicious, rich in protein and loaded with essential minerals and vitamins.

JOCK maintains quality systems of the highest standard at our ISO 9000 and FSA certified plant in Isando. All products go through strict quality procedures, including in-line activity checks and final product inspection on the NIR of protein, moisture, fat and pellet quality. Raw materials and finished products are tested monthly for Mycotoxins, and specifically Aflatoxin, while strict cleaning programmes and Salmonella monitoring further ensures raw materials and production lines hold no contamination risk.

JOCK Dog Food is a brand owned AFGRI Animal Feeds a division of Philafrica Foods (PTY) Limited. Follow JOCK on Facebook for news and legendary four-legged stories from South Africa.

KYRON LABORATORIES (PTY) LTD — STAND 17, 18, 19

Kyron Laboratories, a South African leading company, is a specialist animal health manufacturer which has built a reputation for quality products, innovation and professional integrity. Kyron’s consumer pet products constitute leading brands: Mirra-Cote®, Ultrum®, Purl®, Mobiflex®, Antezole®, Pet Dent® and Arnica Ice® are just a few brands found on veterinary practice shelves throughout the country. Kyron also represents Nonin, SMI, Jorvet and Gimmi. Kyron Laboratories has been operating for more than 27 years as an independent and privately owned company.

- Kyron Laboratories and Kyron Prescriptions serves the veterinary profession with products in three main categories:
- Consumer pet products, veterinary pharmaceutical products and practice aids.
- Equipment and instruments
- Compounded drugs

LAKATO (PTY) LTD — STAND 33

Lakato is one of South Africa’s leading Veterinary Wholesalers, supplying the broadest range of Veterinary products possible to; Veterinary Practices, the Veterinary profession, Veterinary registered Welfare concerns and Veterinarian owned retail outlets throughout South Africa and Southern African. These products include the likes of; Companion Animal Pharmaceuticals, Large Animal Pharmaceuticals, Equine, Poultry, Avian, Swine and Wildlife Pharmaceuticals, Surgicals, Diagnostics, Instruments, Disposables, Cold Chain Biologicals, Human Pharmaceuticals used in Veterinary Practice, Pet products and Veterinary Retail Products. Having branches located in major centres of South Africa, namely; Johannesburg in Gauteng, Cape Town in the Western Cape, Pietermaritzburg in Kwazulu Natal and Port Elizabeth in the Eastern Cape, Lakato can efficiently provide a service to its Veterinary customer base and can truly claim to be South Africa’s leading National Veterinary Wholesaler.

In addition to its traditional Wholesaling business, Lakato also provides Warehousing and Distribution services to numerous Suppliers in the Animal Health Industry.
LOMAEN MEDICAL (PTY) LTD — STAND 40

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We specialize in X-Ray and Imaging Equipment for the Veterinary Market. Please come visit us at Stand No. 40 for some great deals!

MOLECULAR DIAGNOSTIC SERVICES (PTY) LTD — STAND 43

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Molecular Diagnostic Services (Pty) Ltd was established by Dr Denis York in September 1997. Based in Durban, South Africa, Molecular Diagnostic Services (MDS) is a highly advanced molecular diagnostic laboratory. It has as its focus the use of the most advanced technology to perform molecular and genetic analysis in the human and veterinary fields. All tests are quality controlled and are highly accurate and sensitive. MDS offers molecular tests for a wide range of genetic markers and diseases. It has an international reputation and is also represented in Australia and the UK.

A private laboratory, MDS specialises in molecular or nucleic acid based testing. We offer testing in both the human and veterinary fields covering infectious diseases, paternity testing, genotyping assays (for example HIV drug resistance) and food intolerance. In addition, we distribute a range of Rapid and Molecular test kits.

The MDS website offers clients the convenience of ordering test kits online. In addition, the website has a secure login where our clients can view and download the results for the tests they requested.

MEDPET (PTY) LTD — STAND 32

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Medpet develops, manufactures and markets a range of high quality original and generic medicines, treatments, vaccines, vitamins and supplement products for animals, with a focus on companion animals and racing pigeons. The company was established in South Africa in 1988 by a veterinarian. The initial focus was in the niche market of products for racing pigeons. Medpet is proud to be a market leader in avian pharmaceutical products.

Within a few short years after inception, the company diversified by starting to formulate products for dogs and cats. Many of the products were essentially generics but with small improvements here or there in order to make the product more effective, more palatable, easier to keep down, etc.

Although it has changed hands over time and gradually grown to a more professional outfit since those early days, the company is still based in South Africa, and most development and manufacture proudly takes place locally. Medpet prides itself in high ethical standards, and hence has developed an excellent reputation. In addition to its own products, the company has also been asked by several companies to distribute their product lines, and hence also carries a few non-Medpet brands — both locally-made and imported.

MIDLANDS VETERINARY WHOLESALERS — STAND 4, 5, 6

Company name: Midlands Veterinary Wholesalers
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MVW is a nationwide wholesale supplier to veterinary practices in South Africa. The product range includes Act 36 and Act 101 products, capital equipment, petfood, and many more, dispatched from branches in Gauteng and KZN. MVW strives to be a One Stop Shop for the veterinary practice.
MSD ANIMAL HEALTH — STAND 13, 14
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MSD Animal Health is dedicated to the research and development, production and marketing of innovative, high quality animal health products.

The MSD Animal Health sales team is strongly supported by our Veterinary Services Department and 10 highly qualified veterinarians. They provide expertise in their respective fields such as beef, dairy, small livestock, companion animals, pigs and poultry.

MSD Animal Health has always been a research driven company and is proud to have the only South African company-owned research unit in South Africa. We have brought innovative products such as Nobivac, Otomax, Caninsulin, Activyl and Bravecto to vet practices. Visit our stand to meet our team for more information on these products and the rest of our range.

ORTHOMED VETERINARY SOLUTIONS (PTY) LTD — STAND 41
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For over 10 years we have been actively developing & manufacturing high quality orthopaedic implants & instruments. Now renowned for offering gold standard implants, instruments and CPD in every continent all over the world, Orthomed are driven by ground breaking engineering, and satisfied only by enabling the best possible outcome for surgeon, patient and owner.

PPS — STAND 23
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Website: www.pps.co.za

The Professional Provident Society of South Africa is the largest multidisciplinary group of graduate professionals in the world with over 290 000 professional members. PPS is the only mutual financial services company in South Africa that has focused exclusively on graduate professionals for over 75 years.

Unlike a company that is listed on a stock exchange, PPS belongs to its members and operates under the ethos of mutuality; this means that members with qualifying PPS products can exclusively share in the profits of the PPS Group, through the unique PPS Profit-Share Account (previously known as the SRA). PPS offers tailor-made insurance, investment and healthcare solutions exclusively for graduate professionals.

Become a PPS member and you can also have your share in all PPS profits through the PPS Profit-Share Account. PPS offers unique financial solutions to select graduate professionals with a 4-year degree. PPS is an authorised Financial Services Provider. Members with qualifying products share in the profits of PPS. The history of PPS is a dynamic story of how the vision of a few pioneering professionals laid the groundwork of what has become the largest multidisciplinary group of graduate professionals in the world.
RUCENTA MEDICAL SUPPLIES — STAND 36

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Rucenta is a veterinary supplier of consumables, veterinary instrumentation, suture material, veterinary equipment, vitamin injectables, Elizabethan collars, premium pet toys, Ossobello treats and Sanicat.

SOUTH AFRICAN VETERINARY COUNCIL (SAVC) — STAND 20

Contact person: Ronel Mayhew  
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Website: www.savc.org.za

Vision: “Advancing public and animal health through quality veterinary services for all.”

Mission: The South African Veterinary Council seeks, through the statutes of the Veterinary and Para-Veterinary Professions Act, 1982 to:
- serve the interests of the people of South Africa by promoting competent, efficient, accessible and needs driven service delivery in the animal health care sector;
- protect the health and well-being of animals and animal populations;
- protect and represent the interests of the veterinary and para-veterinary professions;
- regulate the professional conduct of the veterinary and para-veterinary professions; and
- set and monitor standards of both education and practice for the veterinary and para-veterinary professions.

SOUTH AFRICAN VETERINARY ASSOCIATION (SAVA) — STAGE

Contact person: Gert Steyn  
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The South African Veterinary Association is a professional association of veterinarians in South Africa. It promotes the interests and activities of the veterinary profession and assists veterinarians to fulfil their role in the community.

CREDO OF THE SAVA

We, the members of the Association, resolve at all times:
- To honour our profession and its Code of Ethics
- To maintain and uphold high professional and scientific standards
- To use our professional knowledge, skill and resources to protect and promote the health and welfare of animals and humans
- To further the status and image of the veterinarian and to foster and enrich veterinary science
- To promote the interests of our Association and the fellowship amongst its members

VISION OF THE SAVA

To be established as the professional body recognised and respected by all stakeholders, representing a united profession, acknowledged as the leaders in animal health, production and welfare.

PURPOSE

The South African Veterinary Association (SAVA) is an association for registered members of the veterinary profession and represents the interests of its members, and in so doing, the interests of animals and the public.

MAIN OBJECTIVES

- The main objectives of the Association are:
The South African Veterinary Foundation (SAVF) is the sister organization to the South African Veterinary Association (SAVA) with a primary focus on funding research of relevance to practicing veterinarians. The mandate of the SAVF is to promote and advance Veterinary and other Biological Sciences in all their aspects. This includes supporting veterinary research at all levels, to fund bursaries and loans for veterinary studies and to invest and administer various financial portfolios in order to promote the knowledge, image and status of the Veterinary and Paraveterinary Professions and practice within Southern Africa resulting in an improved quality of life for animal and man.

The South African Veterinary Association (SAVA) supports responsible pet ownership and understands the importance of the human animal bond. SAVA therefore established Community Veterinary Clinics (CVC) to support vets who would like to assist disadvantaged pet owners (those who can either not afford or do not have access to veterinary services) with basic animal health care. SAVA-CVC generates donations in the form of medical supplies or cash which originates from corporate donors, the sale of paw prints or MySchool membership.

Our vet’s main activity is primary veterinary health care:
- vaccinations
- parasite control and sterilisations.

We also put a lot of emphasis on educating pet owners about basic care of their pets:
- general health
- prevention of dog bites
- nutrition
- training, etc.

Our booklet: “Your best friend” has been developed with the assistance of various scientific organisations and experts. This booklet is currently available in 8 official languages (English, Afrikaans, Sesotho, isiZulu, Setswana, Xhosa, Tsonga and Pedi) and is distributed to pet owners at CVCs countrywide. The knowledge gained through this medium will help to eliminate the root cause of animal abuse (viz. ignorance) and will equip animal owners to become caregivers.
Surgical Systems — STAND 47

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Website: www.surgicalsystems.co.za

Surgical Systems is a small specialized company supplying Vets with virtually any surgical equipment and we offer an outstanding service. It is headed up by three professionals: Dr Alan Emerton, Sr Lyn Spiby, Sr Debbie Lightfoot and assisted by Abby Prokopes. We pride ourselves in sourcing and supplying a vast range of products backed by expert technical knowledge. Contact us should you have any unusual requests. We offer a comprehensive range of high quality purpose designed instruments and implants manufactured by Veterinary Instrumentation in the United Kingdom. We place orders to the UK on a weekly basis and courier orders throughout South Africa and across our borders.

Surgical Systems:
- are the only manufacturer and supplier of Microbe, HAIR & water resistant scrubs, gowns, custom made drapes and tailormade consulting jackets to the Veterinary Profession.
- custom design stainless steel theatre tables, trolleys and other theatre fittings.
- run Wet Labs around the country throughout the year. At these Wet labs, various Surgical Techniques are taught in a hands-on manner.
- stock the Scimitar brand of suture material all components being assembled in RSA making it competitively priced.
- pride ourselves in sourcing and supplying excellent quality products and delivering superb service!

TECVET A DIVISION OF TECMED AFRICA — STAND 42

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Tecvet has been founded to meet the veterinary equipment and support service needs in the African market. The unique economic and local environment dictates a level of service and supply to satisfy an emerging market value that has not been offered up until now.

Tecvet offers the blend of technology and service backup to meet the local challenges experienced in Africa in the 21st century. This concept adds to the unique synergy of drawing from a 20 year old success story in the traditional medical field in the form of Tecmed.

The foundation and infrastructure are well placed to develop and grow this veterinary interest to meet the expectations of range quality equipment, affordable state of the art technology and technical support under one roof. We are here for you.

ULTRA DOG (RCL FOODS CONSUMER (PTY) LTD — GROCERY) — STAND 37, 38

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Ultra Dog is part of the RCL Foods group of companies. RCL Foods is the largest producer of dry pet food in South Africa. Ultra Dog is manufactured in Randfontein. We are currently in the process of commissioning our new manufacturing plant. Ultra Dog is a veterinary specific food dedicated to the veterinary channel. Ultra Dog is supported by a dedicated sales team, a nutritionist as well as a veterinarian.

VETSBRANDS — STAND 34, 35

Mission statement
- To be an exclusively Vet owned company, that will strive to serve our profession to the best of our ability, whilst ensuring a reasonable profit for our veterinary shareholders but in doing so always placing the needs of our patients first.
- To develop and supply scientifically formulated, high quality, affordable Equine and Pet products and Pet foods to the Veterinary profession.
- To supply these products exclusively and Add infinitum only via veterinarians.
- To constantly innovate and develop products that we as a profession need but may not be available from other companies due to financial considerations.
VETPROTECT — STAGE

Company name: VetProtect  
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Website: www.vetprotect.co.za

VetProtect is a Medical Malpractice & Professional Indemnity insurance product designed to protect the integrity of the vet.

The modern veterinary practice is faced with many challenges w.r.t clients who will make claims against vets without realising the emotional impact it has on the vet. Having peace of mind to do what you are designed to do without the constant stress of “what if…” makes Vetprotect a MUST in any veterinary practice. Mistakes happen, and having the proper risk management in place when it happens; is crucial.

Vetprotect is underwritten by iToo in association with Hollard. VetProtect boasts with the expertise of expert vet’s consulting for them; top class liability specialists and a well-known professional legal team.

COVER
• Claims made against the vet or the practice.
• Legal representation at the time of a claim; either at the SAVC or in a Civil Court.

INSURED LIMITS: Insured limits vary between R1 mil & R10 mil. Retroactive cover options are available.

WHO SHOULD PURCHASE THIS COVER?
• Professional Individual (Locums)
• Veterinary Practice where all staff members will enjoy cover under one policy
• Vets working at uninsured practices.
• 24H Help Line available for the vet’s convenience.
• SAVA members can receive up to 7,5% discount on their premium.

VIRBAC — STAND 30,31

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A Veterinary Pharmaceutical company dedicated to animal health

Virbac was founded in 1968, by Pierre-Richard Dick, a French veterinarian, who drew upon his training at the Pasteur Institute to devise and develop new veterinary medications. Virbac was founded with the intention of providing veterinarians, farmers and pet owners with a range of innovative solutions to combat animal diseases.

Today Virbac is present in more than 100 countries and has maintained its independence whilst linking the needs of health care providers to the latest technological advances. Virbac’s innovation offers a practical and comprehensive range of products and services covering the majority of species and pathologies.

Virbac has been forging personalized relationships with veterinarians and farmers for nearly fifty years. Through this privileged partnership, in which social, health and environmental issues come together, Virbac contributes day after day to shape the future of animal health.
V-TECH — STAND 7

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V-Tech (Pty) Ltd provides trusted solutions and quality products to all veterinarians and animal owners by integrating the expertise of various scientific disciplines. Our dedication to supporting the industry, allows us to improve animal and public health.

V-Tech also compounds medicines ranging from injections, pastes, lotions and ointments, through to oral preparations for animals in the following categories:

- Dogs and cats
- Horses
- Exotic animals
- Production animals

Through customizing these medicinal compounds, we can offer targeted use of customized medicines and patient specific dosage regimes. Veterinarians can now offer their patients the best medical care specific to their individual needs.

Healthtech Lifestyle is a division of V-Tech (Pty) Ltd that provides a range of products comprised of a blend of ingredients that assists in the development and conditioning of horses and pets. Nutritional support is vital for providing the optimal levels of vitamins and minerals that contribute to good health and condition for performing animals that need to perform at their best. Our product range contains supplements that aid in the enhancement of healthy skin and coat, joint maintenance, geriatric supplement, vitamin and mineral supplements, electrolyte supplements and calming remedies for horses and pets prone to stressors.

ZOETIS (PTY) LTD — STAND 10, 11, 12

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Our name, Zoetis (zō-EH-tis), is derived from zoetic, which means “pertaining to life.” We chose this name because it signals the relationship between animal health and life; Our lives; The lives of our customers: veterinarians and livestock producers. And the farm and companion animals on which our lives all depend.

At Zoetis, our work is guided by a simple vision – that our products, services and people will be the most valued by animal health customers around the world. Zoetis delivers quality medicines and vaccines, complemented by diagnostic products and genetic tests and supported by a range of services.

At Zoetis, we focus our innovation on discovering and developing the solutions our customers need to succeed. Our results-oriented animal health medicines and vaccines, technical education and business support are designed to help veterinarians and livestock producers address their daily real-world challenges. Our dedication to innovation in animal health is fueled by insights from Zoetis research facilities around the world, a global network of alliances with leading research institutes and universities, and the latest advances from related industries such as pharmaceuticals, biotechnology and agribusiness.
SAVETCON EVENT MANAGEMENT
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www.savetcon.co.za
At BCF, we are world leaders in veterinary imaging. We believe in helping our customers improve animal care.

We provide the best in veterinary diagnostic imaging equipment along with a commitment to learning through our BCF Academy. See our huge range of free learning resources and also our training courses on our website.

We are also dedicated to customer service and technical support with our growing team in South Africa.

Your complete imaging solution from BCF:
- Ultrasound
- X-ray
- CT
- PACS
- CPD training courses and online learning
- Equipment service and technical support

Contact us now to find out more about our new service packages.

See more at www.bcftechnology.co.za
Contact us at +27 82 616 4685 or email service.RSA@bcftechnology.com